

MUNICIPAL JOURNAL AND ENGINEER

A. PRESCOTT FOLWELL, EDITOR

Published every Wednesday

By Swetland Publishing Company
Flatiron Building, Madison Square
New York CityH. M. Swetland, Pres. J. T. Morris, Treas. F. P. Burt, Secy.
G. E. Sly, Advertising Manager
M. C. Robbins, Western Manager, 836 Monadnock Block, Chicago, Ill.

Telephone, 6723 Gramercy, New York

SUBSCRIPTION RATES

United States and possessions, Mexico, Cuba . . \$3.00 per year
 All other countries 4.00 per year
 Entered as second-class matter, January 3, 1906, at the Post Office
 at New York, N. Y., under the Act of Congress of March 3, 1879.

Readers are invited to contribute to the MUNICIPAL JOURNAL
 AND ENGINEER, either in the form of special articles or of letters
 discussing matters of current interest.

It is also desired that the facilities furnished by the reference
 library in this office should be widely known and freely used by
 those interested in municipal affairs. Visitors will be welcomed
 and provided with conveniences for search, and inquiries by mail
 will be promptly dealt with.

OCTOBER 2, 1907.

CONTENTS

Restoring Street Trenches.....	411
Municipal Ownership Discussions.....	411
Underground Conduits in Nashville (Illustrated).....	413
Street Paving Suggestions.....	414
Back Filling Trenches. By George C. Warren.....	415
Police Dogs	417
News of the Municipalities.....	418
Legal News—A Summary and Notes of Recent Decisions.....	423
Municipal Devices	424
News of the Societies.....	425
Trade Notes	426
Personals	427
Patent Claims	427
The Week's Contract News.....	428

Restoring Street Trenches

ELSEWHERE in this issue we publish two papers dealing with the difficult and important problem of so treating excavations in streets, and the paving above them, as to give the most satisfactory results. Mr. Warren, who has had years of experience as a contractor for bitulithic paving, deals with the physical problem only, while Mr. Hatton discusses mainly the means by which the paving contractor, and those making the excavations, can be compelled to maintain a good pavement. The two articles supplement each other, and most of the ideas advanced will be endorsed by those who have had experience in this class of work. Mr. Hatton advocates five-year guarantees, with the privilege of renewal by the city for a second five-year period at a price named in the original bid. But he would hold the contractor responsible for the pavement as a whole, all repairs to which should be made

by him, for which repairs he should receive fair compensation. (A number of engineers are coming to believe that the principle that the contractor maintain the pavement under a guarantee clause is incorrect, and that a true construction guarantee would not require more than one year's duration.) Mr. Warren lays special emphasis on the necessity of returning to the trench all material removed therefrom, except in the cases of unusually large pipes or conduits; and this requirement coincides with that of Mr. Hatton, that the trench (in the case of macadam roads, we understand) should not be crowned above the general surface. The insistence of the latter that the pavement should be removed and rebuilt for at least two and one-half to four feet beyond each side of the trench may seem unnecessary, but our own experience leads us to believe that, in the case of brick and block pavements, at least, the idea is an excellent one. We would not ourselves feel like limiting the use of flushing trenches to those in sandy or gravelly soil only, believing that in many loamy soils or those of sandy clay this method can be used to advantage, but it is certainly to be avoided in clay soils.

Municipal Ownership Discussions

DURING the past few weeks two societies of National importance have discussed the subject of Municipal Ownership, and it is probable that these discussions represent fairly well the ideas of these members upon that subject. The societies referred to are the League of American Municipalities and the Union of Canadian Municipalities. Only the latter of these, however, placed itself upon record, which it did by passing the following resolutions:

"That in the opinion of this convention, as public utilities are so constituted that it is impossible for them to be operated by competition, they should either be controlled and regulated by the Government or should be operated by the public, and that they should not, in any event, be left to do as they please.

"Further resolved, That municipal ownership should not be extended to revenue-producing industries which do not involve public health, public safety, public transportation or the permanent occupation of public streets and grounds, and similar principles; but that municipal ownership should not be undertaken solely for profit.

"Resolved, That in the opinion of this convention all future grants to private companies for the construction and operation of public utilities should be determinable at fixed periods, and that meanwhile, at certain stated times during such period, cities should have the right to purchase the property for operation, lease or sale, paying its fair value.

"Further resolved, That in the future provision be made for a competent public authority with power to require from all public utilities a uniform system of records and accounts, giving all financial data and all information concerning the quality of service and the cost thereof, such data to be published and distributed as official reports.

"No. 3.—Resolved, That in the opinion of this convention no stocks or bonds for public utilities should be issued without the approval of some competent public authority, thus setting the capital by official investigation.

"Further resolved, That a standard rate of dividend should be fixed, which may be increased only when the price of the commodity sold or the rate of transportation has been reduced.

"No. 4.—That in the opinion of this convention, where the management of public utilities is left with private companies, the city should retain in all cases an interest in the growth and profits of the future, either by a share of the profits or a reduction of the

charges, the latter being preferable, as it enures to the benefit of those who use the utilities, while a share of the profits benefits the taxpayers.

"No. 5.—That in the opinion of this convention, where the operation of the public utilities is by the municipality, there should be a complete separation of the finances of the undertaking from those of the rest of the city, and that the bonds issued for such utilities should be a first charge upon the property and revenue of such undertaking."

It is noticed that these resolutions follow, to a certain extent, those adopted by the Committee of the National Civic Federation, as in the statement that municipal ownership is especially applicable to utilities involving public health, safety, transportation or the permanent occupation of streets and grounds; that public corporations should be under strict government control, with power to examine their accounts and control the issuing of stocks and bonds and also the dividends; that franchises should be terminable at the option of the municipality after a certain fixed time, and that the city should share in the profits in some way, preferably by the reduction of charges.

The League of American Municipalities gave more prominence in its recent convention to the subjects of Municipal Ownership and of Government by Commission than to any other matters. Owing partly at least to the urgent advocacy of Ex-Mayor Dunne, the society has, for two or three years, devoted considerable attention to municipal ownership, which has been favored by probably a majority of its members. The principal address upon the subject this year, however, was a conservative opposition to municipal ownership and was presented by Edward A. Moffitt, Secretary of the Investigation Committee of the National Civic Federation. His paper was responded to by Messrs. Dunne, Coatsworth, Beardsley and Cooke; and the general impression conveyed was that the majority of the members present did not agree with his ideas upon the subject. The advance of municipal ownership he believed to be due "to emotional prejudice and error in estimating financial results." He did not believe that there had yet been established in America that "high capacity of municipal government" which the investigating committee considered essential for successful municipal ownership. The fault of this, however, he considered to lie, not with the public officials, but with the citizens who are too much concerned in personal affairs to give public officials proper attention, support and encouragement. He admitted that Public Service Corporations had been rightly subjected to much criticism in the past and believed that "the municipal ownership wave has done good as a punishment and a warning;" but he believed that the impression received by many that the scheme is potentially meritorious and susceptible to universal application is a great evil. One of the beneficial results of the municipal ownership propaganda has been the discovery and application of some of the latent powers of our State and Municipal Governments in the control of public service corporations; and in the development and utilization of these powers he believed lay the remedy for present objectionable conditions rather than in the removal of public utilities for

private control. The profits of private corporations, he believed, are, under municipal control, more than balanced by "the inability of municipal plants to buy supplies, materials, brains or labor as cheaply as private industries."

What may be considered an official statement of the advocates of municipal ownership was made by Ex-Mayor Dunne in his address wherein he stated that "the friends of municipal ownership in this country have contented themselves with simply insisting that any enterprise which required necessarily the use of public property and which therefore must be a monopoly, should be placed in public hands. No friends of municipal ownership in America will quarrel with that part of the report of the Committee (of the National Civic League) which declares that the Municipal Ownership of Public Utilities should not be extended to the revenue-producing industries which do not involve the public health, the public safety, the public transportation or the permanent occupation of public streets or grounds." Ex-Mayor Dunne believed that "to secure the best possible public services at the lowest practicable price, economic law requires: First, that a public service corporation organized to supply a perpetual public need shall have the exclusive right to supply such need perpetually. Second, that all accounts shall be honestly and correctly kept; that economic thrift shall be insisted upon in every department, and that charges for the use of these services shall bear a fixed relation to the necessary cost of production." Most governments have erred by placing dependence upon the principle of competition instead of the principle of governmental regulation. For the proper conduct of the latter, it is necessary that the State establish a Department of Public Accounting and Inspection. "Under a system of State regulation such as is here advocated, every interest of users, of municipalities and of the State, will be best served by granting exclusive, perpetual and untaxed franchises to public service corporations, which can then render the best obtainable service at the lowest profitable rates, and can satisfy the users of their services that they are doing so."

A comparison of the ideas and expressions contained in these papers, the authors of both of which are avowed advocates or opponents of municipal ownership, apparently shows that the hysterical stage of the controversy has about passed and that reason based upon careful, intelligent study of actual conditions rather than upon theories, will, in the future, determine the actions to be taken by various municipalities in this matter. Neither side now believes that every one on the other side is controlled by blind prejudice or dishonest motives; and what is still more remarkable is the fact that each side recommends as a remedy for present conditions, in a considerable number of cases, the application of governmental control rather than governmental ownership and operation. It augurs well for improved conditions in our cities that the advocates of these opposing ideas are apparently approaching a ground of common agreement, especially as the events of the last few months have appeared to give sure indications that the alternative upon which they both

seem almost ready to compromise has already produced and is producing such excellent results. In this controversy it seems to us that too little emphasis has been placed upon one point which was mentioned by Mr. Moffitt, namely, the responsibility of the people themselves for failures in municipal ownership. It is not enough to have honest officials, but these officials must be backed by popular interest.

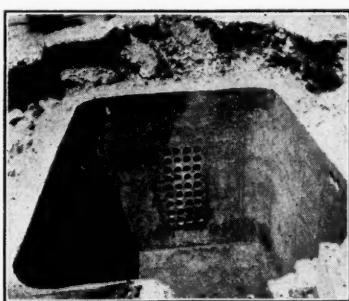
Until public officials who endeavor to compel the employees of their department to render a fair day's work for a day's pay, cease to be met with the indulgent smiles of the average citizen as impracticable cranks or reformers, not only will their enthusiasm in securing such results be dampened, but their success will be rendered practically impossible by clogs in other parts of the municipal machinery of which they necessarily constitute but a part.

Underground Conduits in Nashville

THE city of Nashville, Tenn., last year ordered all wires in a certain district underground, and work upon the carrying out of this order has been under way for the past twelve months. Whether or not the city possessed the alternative of building its own underground conduits and leasing the same to several companies, or of permitting the companies to build their own conduits, we are not informed; but the latter method was the one adopted, and the result is an excellent illustration of the disadvantages which, in many cases, result from this plan. Throughout a very large part of the city, lime rock is found within a few inches of the surface, and the work of construction is consequently not only expensive and slow, but is causing considerable inconvenience to the citizens.



CUT IN SOLID ROCK



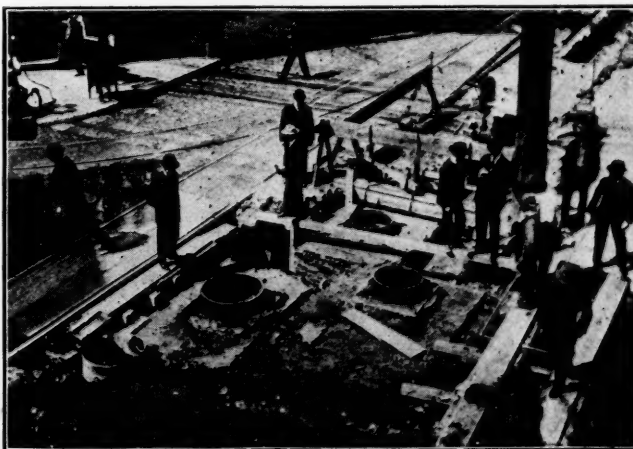
CONCRETE MANHOLE

This would be the case were but one conduit being constructed; but, as a matter of fact, four separate conduits are being built by the Cumberland Telephone and Telegraph Company, the Nashville Railway and Light Company, the Western Union Company and the Postal Telegraph Company. The same trench is used jointly where this is practicable, but even in this the number of ducts placed is probably greater than if a joint conduit were being built, especially since different kinds of ducts are being used by the different companies. The telephone and the Postal Telegraph Company use clay ducts, the Railway and Light company wood fiber ducts, and the Western Union steel pipe. Moreover, each company is constructing its own manholes, the Railway and Light company using concrete, while the other companies are constructing theirs with brick. The telephone company



CLAY DUCTS OF TELEPHONE CO. AND FIBER DUCTS OF LIGHT CO.

and the Railway and Light company will use $5\frac{1}{2}$ miles of trench, the Postal Company $1\frac{1}{2}$ miles and the Western Union $1\frac{3}{4}$ miles. The inconvenience due to the multiplication of conduits and of manholes is aggravated by the fact that many of Nashville's streets are narrow. One of the illustrations shows how the four manholes at a street intersection break up the paving at this point, and will probably play a very large part in the future difficulty of maintaining the same in anything like a good condition, no matter what material may be employed for the paving (brick appears to have been used previously, and will, we suppose, be replaced at this point). As 250 manholes are to be built throughout the city, it seems probable that conditions similar to those illustrated at this street intersection will be duplicated at 40 or 50 other intersections. It is possible that at Nashville there was no possibility of avoiding the objectionable features here referred to; but the undesirable conditions resulting from such multiplicity of conduits would certainly indicate the advantages of either a municipally-owned conduit, the ducts to be leased to the various companies, or the combination of the companies—compulsory if necessary—for the construction of a common conduit, which should be owned and used by all under proper municipal control.



MANHOLES FOR LIGHT COMPANY, TELEPHONE COMPANY AND WESTERN UNION AND POSTAL TELEGRAPH COMPANIES.

STREET PAVING SUGGESTIONS

Selection of Material by Non-Experts Criticised—Effect of Local Conditions—Maintenance and Repair of Pavements

A PAPER on this subject was read before the League of Pennsylvania Cities of the Third Class by T. Chalkley Hatton, of Wilmington, Del., which contains several points worth careful reading by all city officials interested in street paving. He called attention to the objectionable features attached to the selection of pavements by the inspection of the paving of other cities by non-expert citizens upon the invitation and under the guidance of a prejudiced expert. Any bright man interested in a certain pavement which has any merit whatever should have little difficulty in showing to the committee of citizens successful samples of that pavement, and in persuading them that it would be a good one to adopt in their own city. Where several kinds of paving are thus brought to the attention of such non-experts, their decision is apt to depend less upon the character of the pavement than upon that of its agents. The pavement selected is very probably a good one, and yet it may not be at all suitable for the locality in which it is laid. It is a common thing to hear the officials of one city condemn a certain kind of paving which they have used unsuccessfully, and those of a neighboring one praise it as being one of the best, and the reason for this is quite frequently because in one case the pavement was adapted to the existing conditions and in the other it was not. As explained by Mr. George W. Tillson, in his "Pavements and Paving Materials," the best pavement is one which offers the best combination of durability, cheapness, ease of cleansing, least resistance to traffic, safety from slipping, least cost of maintenance, favorableness to travel, and sanitation. "Local conditions are everywhere such that no one class of paving will meet all the above-named properties upon every street, and so the expert, in determining the best paving, studies the conditions upon each street, the sub-foundation which may be encountered, and makes his decision with a full knowledge of what may be expected of each kind of material and foundation. A material which may meet all of the requirements for a retail business street would not be applicable for a wholesale or manufacturing district. One which might be best for a certain residential district may not be at all suitable for another residential district, owing perhaps to the topography, drainage, and class of residents. A certain depth or class of foundation upon one street or upon one sub-soil may not answer the best purpose on another. Only recently the writer prepared specifications for paving about twenty-one streets of a city. These specifications provided for eleven different classes of pavement, each one of which was applicable to certain streets, and it is proposed to adopt each in accordance with the theory of pavements as outlined above." The author cites an instance where certain city authorities unanimously favored macadam for a certain

boulevard because they believed it would require less maintenance cost, believing that the automobiles would act as a roller to keep the material compact. They were finally convinced, however, of the sucking effect of automobile tires which causes macadam to ravel rapidly, and decided not to use macadam in this instance. In another city it was decided to pave with brick a street on which the sidewalks were continuous concrete from building to curb. In spite of arguments, the street committee refused to use any asphalt filler or sand joints, and within a month after the completion of the pavements the merchants experienced the transmission of noise through the cement joints, brick, and concrete sidewalk directly to the walls of their buildings and petitioned for a remedy. The placing of noisy pavements around court houses, school houses and hospitals is one mistake which is quite commonly made.

Taking up the matter of pavement maintenance, he described the difficulties met with by a conscientious official in endeavoring to see that the various parties who make openings in the street paving comply with the ordinary requirements that they restore the pavement in a condition as good as before excavation. Failure to actually secure such condition he attributes to the lack of skill in the plumbers' workmen who restore the paving; to the endeavor to use the old material rather than substituting new in the repairs, and to repaving the area immediately above the trench only. Even when the work is otherwise well done, if the new paving is laid with a slight arching above the trench to allow for future settlement, a hole generally forms upon each side of the ridge due to the pounding of the traffic as it jumps off the ridge and strikes the lower surface of the pavement.

The author believed that a great improvement could be made in conditions ordinarily existing by the adoption of specifications containing many ideas which may not be indorsed by all of our readers, but which are certainly worth serious consideration. He would demand a guarantee of five years during which the contractor should maintain the pavement up to a certain standard defined as follows:

"If any defect or failure in the pavement be caused by settlement, breaking up or disintegration of the foundation, the section so damaged shall be entirely removed and replaced with first-class materials and workmanship corresponding with the best in the balance of the work. If any portion of the pavement shall disintegrate or abrade unduly or unevenly, develop bunches, depressions or unevenness in the surface which will allow water to collect within spaces five feet in width adjoining the curbs on either side, or eighteen inches on each side of the rails of a railway track, to a depth of three-quarters of an inch, or to a depth exceeding one-half inch upon the remainder of the pavement, such portions shall be immediately repaved by removing the paving material, and the foundation if necessary, and replacing it with materials and workmanship equal to the best used in the original pavement; providing, that when more than 50 per cent. of the surface of any one square or block requires such repairing, as above described, the entire square or block shall

be taken up and relaid as above. In determining the extent of bunches and depressions, a straight edge six feet long shall be laid parallel with the curb lines upon any portion of the surface of the pavement."

He would also provide that the city may, at its option, extend the guarantee for a second five years; this option to be exercised if, at the end of the first five years, the pavement begins to show signs of bad workmanship or materials. The contractor would state a price per square yard for which the option may be thus extended, which he should be willing to do, if he has faith in his pavement, for a sum not exceeding three cents per year per square yard. "The contractor who guarantees his pavement should not only have the privilege, but should be required to make all repairs thereto occasioned by its being dug up to do underground work, and he should be required to guarantee these repairs in the same way and for the period covered by the original guarantee. Thus he becomes responsible for the condition of the pavement throughout the entire guarantee period, and no question can arise as to his responsibility. This can be obtained by fixing, in the proposal, a certain price per square yard for making the repairs, such price to appear as a percentage in excess of his price named for doing the original work. For instance, for all amounts of twenty square yards or under in one order, he shall be paid 50 per cent. in excess of his stated price for laying the original paving; for more than twenty yards, and not exceeding fifty yards, 33 per cent., and for all amounts in excess of fifty square yards, 25 per cent. Thus the contractor names his own price for doing the repair work, but such price is limited by the percentages. He is also paid more per unit for doing a small quantity of repair work than for a larger quantity, as he should be, because of the corresponding trouble and expense to him per unit. Under this provision the repairs to a new pavement are satisfactorily solved without expense to the city, because, as each permit is given to dig into the new pavements, those receiving the permit should deposit in cash sufficient money to cover the whole sum for repairing the pavement, and as the cost per square yard is known, the total cost can be readily determined.

"So much for the maintenance of the new pavement, but how about the old? It will not do for everyone to repair old pavements, because it requires skilled workmanship and the best materials to do it satisfactorily. Parties who are usually tearing up pavements have neither, but the city can always obtain them, and it alone should be entrusted with the work. Cities which have any great amount of pavements laid usually have in their employ workmen skilled in laying the several kinds of pavement, or can secure them. They could and should have on hand surplus materials corresponding in kind and quality with the original pavement laid. When a permit is issued to any party to dig into and disturb a pavement a cash deposit should be required sufficient to pay the cost of inspecting the refilling of the trenches and of repaving the street. A unit price per square yard should be fixed by resolution or ordinance to cover such costs for each kind of pavement, including the inspection necessary

to have the trench properly refilled, and a minimum width of pavement should be provided of nine feet for all trenches, four feet or under in width; over four and up to six feet, a minimum width of twelve feet; over six feet in width and up to ten, a minimum width of fifteen feet. This extra width permits of the paving being removed from each side of the trench where the ground is likely to become unstable because of its disturbance, and allows the repair work to be properly tied in with the old, leaving no bunches or depressions. By this method of repairs it is unnecessary to crown the surface of the repair work, as is usually done.

"When it is necessary for the street car company to repair its track at different points, which seems to be of frequent occurrence, it should be required to pay the city the cost of repaving just the same as others are required, and such sums as will cover the cost of tying into the old portion of the pavement to a distance of not less than three feet outside of the lines of excavation, and where any disturbance is permitted between the rails the entire width of pavement between the rails should be removed and relaid and the company charged for such area. This method prevents the removal and replacement of a few square feet of pavement at the rail joints, which is so frequently done. No class of pavement can be successfully repaired when the area of the repairs is less than two square yards."

BACK FILLING TRENCHES

Paper Read Before American Society of Municipal Improvements—Need of Better Methods—A Year's Settling Not Effective—Specifications and Methods Proposed

By GEORGE C. WARREN.

It is pleasing to note that recent issues of the engineering periodicals have devoted prominent space to this matter, which is both one of the most important and one of the most generally neglected matters which municipal officials and contractors have to meet in connection with street work.

One of the articles referred to quotes from specifications of the West Park Commissioners of Chicago, which are incorporated in permits granted for making excavations in streets to reach underground service pipes. From the quotation, the following extract is of special interest:

"All material excavated from any trench under paved roadways must be removed from the boulevard; said trench being refilled with clean cinders, sand, gravel, or crushed stone, placed in layers not exceeding six inches in depth, thoroughly compacted with heavy hand rammers, using the necessary amount of water to complete perfect consolidation of the back filling."

This specification is certainly on the safe side, but for general use in many, if not most cases, it seems to the writer unnecessarily severe and expensive in the requirement that all material excavated from any trench must be removed from the street and replaced by cinders, sand, gravel, crushed stone, etc.

In stating that such specifications appear to me too severe, I refer to the clause regarding removal of excavated material from the street and to a *general application* of such requirement regardless of location of work or character of material "excavated from any trench." In the case of West Chicago Park Boulevards, such a general stipulation may be justified by either:

(a) The importance of not littering the boulevards any more than absolutely necessary and of maintaining their fine appearance as constantly as possible, or

(b) The knowledge, if it is a fact, that the sub-soil underlying this section of Chicago is of a character which, after once being disturbed, is unsuitable for back filling of trenches. Whatever may be the reason and justification for such a claim by the Chicago West Park Commission (and I assume it is justified there), this should not be set out as a generally suitable provision and for all cities and all classes of sub-soil. I do not want to be understood as advocating withdrawal of one iota of the greatest precaution and care in this important matter of backfilling of trenches, carelessness in which is costing an aggregate of hundreds of thousands of dollars annually in damage to pavements and vehicles. On the contrary, my purpose is to endeavor to point out the importance of the matter and to suggest practicable, general requirements for overcoming the difficulty in the most economical way as to each particular case.

With a quarter of a century experience in street paving throughout the United States and Canada, I believe I have met the matter of back filling of trenches in about all of its possible phases, and I appreciate that it is a most difficult matter to draft a specification which will give:

(a) Efficient results.

(b) A basis of payment for the work which will insure the greatest practicable economy to the city and fairness to the contractor.

The greatest difficulty arises from the fact that the method of treatment and cost thereof vary very widely with the character of sub-soil, which often varies very greatly within the limits of one sewer or water or gas main trench, which often cannot be foreseen and which often varies with the weather conditions (wet or dry) which happen to prevail.

There is a popular notion that trenches should be allowed to settle for a year before paving and that then it is safe. This is not only a fallacy which breeds carelessness in cases where it is thought no pavement will be laid in a year or more, but it is impracticable to defer paving until a year or more after all mains and house connections are made and equally impracticable to avoid cutting into pavement for installation of and repairs to service pipes, although the latter can be guarded against by the exercise of reasonable precaution much more than is generally done. We all know that by careless or indifferent back filling of trenches unpaved streets are often rendered dangerous and nearly impassable for years.

However, I have never known of a case where trouble has followed from the settlement of sewer or service pipe

trenches made immediately before the laying of the pavement where I had supervision of the back filling, even with very treacherous soil conditions. I would far rather take my chances on the guarantee of a pavement laid immediately after a sewer trench, the filling of which I could control, than five years after the laying of a sewer, the trench of which was filled with the generally customary carelessness and usual view only to least possible cost.

To name the remedy is more difficult than to call attention to the common faults. In the case of permits to public service corporations, plumbers and abutting owners to cut into the streets, *whether paved or unpaved* (the former is but little more important than the latter), it is only necessary to stipulate in the permit that "the trenches shall be back filled by such means as the City Engineer may direct, depending on the character of the excavated material, in such a manner that all excavated material shall be replaced in the trench without raising the grade of the roadway. Flushing will only be permitted in cases where the sub-soil is sand or gravel or other material from which the surplus water will readily drain away." In criticism of this proposed requirement reference may be made to the volume of the pipe. My reply is that except in trunk sewers (which do not apply to the permits referred to) the volume of the pipe is so little in comparison to the volume of the trench as to be insignificant, and it is well known that, in ordinary cases, more earth can be tamped into a trench than is removed from it. There is the familiar farmer's post hole, which will take the earth removed from the hole and the post besides. In my judgment, the only case where the rule of "get back all the dirt" cannot apply is in rock excavation, in which case the breaking up of the rock nearly doubles its volume and the particles of rock are so large that they cannot be replaced to their original density.

In the case of contract work for sewers, etc., the case is more difficult in view of the necessary uncertainty of conditions to be met under ground, and consequent uncertainty of the most economical way to properly "back fill" the trench and consequent impracticability of the contractor accurately figuring in advance what the cost "per lin. ft." will be. On this account some contractors are sure to bid far too low to permit proper work, and others figure "safe," with the probability that if they happen to receive the contract the price will be too much advance on the probable cost. In one case the city has the almost impossible task of forcing the contractor to do proper work when the price is too low to permit it without loss. In the other case, the probability is that the city will pay too much for the work. An effort should be made to avoid both evils.

My suggestion is, divide prices in such a way that, whatever is encountered, a fair price will be allowed the contractor, as follows:

(a) Setting pipes per lin. ft.

(b) Earth excavation per cu. yd.

(c) Rock excavation per cu. yd. (if rock is likely to be encountered).

(d) Hauling excavated material to spoil bank (if un-

suitable for back filling and its removal directed by the Engineer) per cu. yd.

(e) Lumber delivered on work (if any required for shoring) per M. B. M.

(f) Placing or replacing (if lumber is reused) in sewer trench per M. B. M.

(g) Refilling trench if back filled by flushing earth excavated from trench, per cu. yd.

(h) Refilling trench if back filled by tamping earth excavated from trench, per cu. yd.

(i) Refilling trench if back filled by flushing suitable borrowed material (to replace unsuitable excavated material drawn to spoil bank by order of Engineer), including furnishing the material, per cu. yd., measured in the wagons as material is delivered.

(j) Refilling trench if back filled by tamping suitable borrowed material (conditions the same as item "i"), per cu. yd.

(k) Refilling trench with rock excavated from the trench, per cu. yd.

Corresponding with such a schedule of prices in proposal and contract, the specifications should provide as follows:

1st. Material excavated from the trench which, in the opinion of the Engineer, is unsuitable for back filling shall be hauled by the contractor to a spoil bank and shall be paid for at the price bid per cu. yd. for "hauling excavation to spoil bank." Measurement to be made in the wagons at point where loaded.

2nd. Flushing in back filling will be permitted only in case the material is sand or gravel or other material, from which, in the opinion of the Engineer, the surplus water will readily drain away and leave the earth filled solid.

3d. Except where flushing is directed by the Engineer, the back filling shall be done by thorough hand tamping in layers not exceeding six (6) inches in depth.

4th. Whether back filling of earth is done by flushing or tamping, the full amount of material excavated from the trench, less the volume of the sewer, shall be refilled into the trench without raising the grade.

5th. In case rock is excavated from the trench, it shall be back filled by carefully hand placing the excavated rock in layers with succeeding layers of earth well flushed into the voids between the pieces of hand placed rock.

6th. In case the excavated material is clay, which, in the opinion of the Engineer, is too wet to enable solid back filling by tamping, the excavated wet clay and reasonably dry "borrowed" earth shall be tamped into the trench in succeeding layers, using enough of the dry earth to overcome the excess of water in the clay and to provide a solidly filled trench to the satisfaction of the Engineer. The "borrowed" earth, including tamping, to be paid for per cu. yd. of "borrowed material" tamped into the trench. Measurement to be made in the wagons as delivered on the work.

If this suggestion is criticised as being complicated, the answer is, "The conditions are necessarily complicated by practical inability to tell in advance the condition of material to be excavated, and consequently the treatment it

should receive in back filling, and the simple but incomplete specifications and method of payment generally adopted in the past has resulted in quite general unsatisfactory results. Some condition should be provided which will correct the evil of poorly filled trenches, however complicated they may be."

Of course, it must be expected that the cost of efficient and proper back filling of trenches will be much greater than the cost of the inefficient system at present generally in vogue, but the increased cost will be small in comparison to the saving in repairs to road surfaces and vehicles.

A prominent engineering paper which makes a specialty of earth work in recent times, published a series of tables giving very interesting and complete cost data, evidently collected and tabulated with very great care. One report of twenty-six jobs on sewer sections in one city, aggregating 8,882 lin. ft., shows an average cost of back filling the trenches of \$0.0722 per cu. yd. The soil is generally reported as good clay and that back filling was done by hand shovels. Now, it is well known that this is a very low average cost of bare shoveling of earth under the most favorable conditions, so that the back filling must have consisted of mere loose shoveling of the earth into the trench. What of the condition of the roadway, whether paved or unpaved, following this shoddy work and what of the vehicles which have to pass over this nearly two miles of street during the next several years?

An important point not referred to above in connection with repaving unpaved streets over sewer trenches, is the matter of foundation. Even with the greatest care in back filling the trench, it should be reinforced at the top by a solid Portland cement concrete foundation for the pavement, and the concrete should extend over the edges of the trench about six inches on each side.

One engineering journal recently suggested that tamping the earth in back filling trenches be done with pneumatic or steam rammers—something on the order of pneumatic or steam riveting machines. This offers suggestive food for the mechanical inventor, but, as far as I am aware, nothing of the kind has yet been perfected. For the present, tamping must be done by hand, and a good rule is two good men with heavy rammers in the trench to each shoveler outside, and of the three men, put the two best on the tampers. The common practice where there is even the pretense of tamping is, say, four to six shovelers to one tamper, with the poorest man in the trench because his work doesn't count in the amount of trench back filled.

Police Dogs

THE Antwerp police have for some time been trying the use of dogs to assist the regular force, and have found them practically useless in thickly populated districts, but of real value in the rural ones, where a night watchman, alone and unaided, frequently has to patrol a territory covering miles of sparsely settled country. The impossibility of teaching dogs to distinguish between honest and dishonest men or actions makes it necessary that a policeman accompany each one.

NEWS OF THE MUNICIPALITIES

Divers Subjects of General Interest and Their Treatment by City Councils and Officials—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Departments—Government and Finance

Roads and Pavements

BUFFALO, N. Y.—The Economic Power and Construction Company has served notice on the city that it is prepared to tear up the streets of Buffalo under the powers granted by its omnibus charter, to lay steam mains and electric-wire conduits. The charter of the company is an unusually broad instrument, and confers rights to enter upon the streets of the city that are not approved by all the members of the Council. The Corporation Counsel, some time ago, reported that the company seemed to have the right to open the streets, but there were some lines on which the extraordinary powers of the corporation might be attacked, but no further action was taken, and the Power Company is tired of waiting. Since their recent notice, a resolution has been passed by Council which practically forbids the company to proceed.

DALLAS, TEX.—The Municipal Commissioners have practically reached a deadlock in negotiations with paving companies, and the city may establish its own paving plant. The Barber Asphalt Company did not bid on Main street at all, and the Bitulithic Company submitted figures which are considered exorbitant by the city. The General Supply & Contracting Company established some new high prices for brick and block, and offers natural rock asphalt at \$1.75 outside the tracks; creosoted blocks at \$3.50 per square yard, brick at \$2.80, with five-year maintenance. The Bitulithic Company, which laid the Ervay street pavement on concrete base for \$2.32, asks \$2.80 for Main street. The same company which laid Forest avenue on bituminous base at \$2.35, offers to do Main street on a bituminous base for \$2.56. This company laid Akard street, Main to Commerce, on bituminous base for \$1.75 "for advertising purposes." The Coffeyville Brick Company quoted prices on brick per 1,000. The city authorities are considering the proposition to pave Murphy street with brick in order to compare the figures.

SHERMAN, TEX.—The property owners on Berge street in the suburb of Fairview have adopted the volunteer street improvement district plan. They have pledged an amount sufficient to pave a little less than half a mile of that thoroughfare with the bituminous process, crushed stone and asphalt, and have asked the City Council to make an appropriation to cover street intersections and some work at bridge approaches. They have also requested an extension of the sewers in that section.

WASHINGTON, D. C.—Engineer Commissioner Jay J. Morrow feels that the people of the District realize that, if there is any foundation for the criticism recently expressed by the western city officials returning from the Convention of the League of American Municipalities, as to the street cleaning, street paving and general appearance of the thoroughfares, it is due to the fact that Congress had not seen fit to concur in the Commissioners' recommendations for increased appropriations for repairs until last year, and the time has been too short to complete the work. Commissioner Morrow says that not a single one of the cities he has visited during the past two or three years has the best of the capital with respect to the condition of its curbs and sidewalks, and very few of them in the condition of its roadway pavements taken as a whole. He is anxious, however, to have the pavements of the National Capital not only equal, but superior to those of any other municipality.

Sewerage and Sanitation

DAYTON, O.—The Board of Public Works has asked Council for an appropriation of \$750 to purchase the Stewart sewer cleaning machine which has recently been on trial in this city. The machine was tested on several sewers on the West Side which were completely stopped up; it operates from the manholes connected with the sewers, thus avoiding digging through the concrete or street, or the breaking of any pipe already laid.

NEWARK, N. J.—Smoke Inspector Daniel Maloney predicts that by the first of the year Newark will be a smokeless city. He has asked that the city's chemist be permitted to make occasional analyses of specimens of soft coal, as he thinks with such data he can more definitely fix the causes for smoke and be able to understand more readily why some smoke consuming devices will work on one boiler and not on another. Mr. Maloney reports that eighty-one complaints have been investigated and, with the exception of cases of violations by railroad locomotives, which have been referred to the Law Department, steps have been taken with a view to remedying the evil.

WASHINGTON, D. C.—D. E. McComb, Superintendent of the Sewer Division of the Engineer Department of the District, in his annual report just submitted to the Commissioners, urges the consideration of the subject of sewage purification. Mr. McComb declares that the time has come to give this matter some attention, in anticipation of the time when the population of the District shall have increased beyond the limit of the capacity of the Potomac river to dilute its sewage so that its discharge into the river in crude condition will be inadmissible. He claims that the Potomac river will not be sufficient to dilute the sewage when the population of this city reaches the half-million mark, and it will be necessary to partially purify the sewage before its discharge to avoid the creation of insanitary river conditions. The work of finishing connections and installing regulating apparatus still remains to be done before the sewage disposal part of the project can be considered complete. No provision for the dikes of the project has been made by Congress. Until the dikes shall be constructed the project will lack one feature necessary to protect the low area from flooding during the high freshet stages of the Potomac river.

Water Works

YOUNGSTOWN, O.—Philip Hagan, Director of Public Service, says the city is using more water than the flow of the river and that the volume of water now going out of the main seven-foot sewer is greater than the volume of water now flowing through the river channel. The outlet of the main sewer is at Crab Creek, from which it flows back into the river near the East End bridge, which indicates that the river when at low ebb gives the city an inadequate water supply. The fact that a seven-foot sewer can carry without being filled to its capacity by any means a flow of water equal to that of the river shows just how little water comparatively there is flowing through the river at the present time, and those interested feel that something must be done quickly towards procuring an increase in the supply.

FORT DODGE, IA.—Councilman J. W. Kline has brought before Council the question whether or not a city can

legally grant the right of free water, furnished by a municipally owned plant, to manufacturing enterprises, as an inducement for them to locate within its bounds. Mr. Kline states that investigation has shown him that the city's water plant is being conducted under a heavy yearly loss because money is expended in pumping large quantities of water for which no revenue is derived, and has announced that he will test the legality of all free water contracts.

PHILADELPHIA, PA.—Mayor John E. Reyburn has expressed the decided opinion that the only way to correct inequalities in payments for the use or waste of water is to place a water meter in each residence and other place that uses water from the city's pipes. The Mayor calls special attention to the great waste of water and argues that this trouble would be largely corrected if the amount of a person's payment for water depended upon how much he permitted to flow from the various faucets or other attachments on his premises.

SALT LAKE CITY, UTAH.—Louis C. Kelsey, City Engineer, has asked Council to memorialize the Secretary of Agriculture to plant timber on the three hundred acres of land owned by the city along the watershed in Parley's canyon, as he believes trees on the irrigable mountain lands will greatly aid in conserving and keeping pure the water supply of Salt Lake City. Mr. Kelsey says the land in question was purchased by the city in order to remove certain causes of contamination and to protect the water supply furnished by the creek from waste and pollution, but the flow is excessive in the spring and correspondingly insufficient in the late season, and he thinks that if the mountains could be planted with trees it would contribute largely toward the desired regulation of the flow, and take the place of spreading a portion of the flood water upon the land as at present practiced.

SHREVEPORT, LA.—The report of Dr. P. E. Achinard, Bacteriologist of the Louisiana State Board of Health, on samples of water from Cross Bayou, from which the city gets its supply, states that, owing to the large amount of bacteria, this water without sterilization is totally unfit for drinking purposes. Dr. C. H. Irion, President of the State Board of Health, who visited Shreveport at the request of Governor Blanchard to thoroughly investigate the water supply, declares that the water is a solution of sewage, and that conditions as he found them are unprintable.

Street Lighting and Electric Power

BERLIN, GERMANY.—The city authorities do not believe they will have to borrow any money for years to come. Not only does the city budget for the present fiscal year show no deficit, but there will even be a surplus of not less than fifteen million marks. The surplus is all derived from the gas works owned and operated by the city of Berlin, which have proved enormously profitable, although the quality of the gas turned out is excellent, and it is sold to the consumers at a much cheaper price than the average price in the large cities of America. The employees of the municipal gas works are well paid, entitled to a pension after twenty-five years' service, and are all insured against accidents by the city.

FORT WORTH, TEX.—An ordinance, governing all electrical wiring and providing for its inspection, has recently been passed. Any person or firm desiring to install electrical wiring or apparatus of any kind in a building must obtain a permit from the City Electrician, and those engaged in the sale of wiring or apparatus must procure and maintain a special license. Inspection of all work and paraphernalia must be made at regular intervals by the City Electrician, and the City Engineer is empowered to condemn any wiring or apparatus at his discretion.

SYRACUSE, N. Y.—It is probable that the State Commission will abandon any attempt to make regular inspections of electric meters in Syracuse and perhaps other cities. Henry C. Hazzard, Chief of the Division of Light, Heat and Power of the Public Service Commission of the Second District, recently visited Syracuse and learned that the Syracuse Lighting Company makes a complete inspection of all its meters every three years and he considers that the State could not do it so often, and the magnitude of the labor of regular inspections is out of proportion to the necessity. If the State has to meet the cost of thorough inspections it will soon be financially handicapped. A construction can be put upon the public utilities law which will not make electric meter inspections obligatory upon the State, and a committee, of which Henry J. Blakeslee, Superintendent of the Bureau of Gas and Electricity of Syracuse, has been made a member, has been named to further investigate the feasibility of attempting to carry out the inspection clause.

WASHINGTON, D. C.—E. G. Runyan, Inspector of Gas and Meters in the District, in his annual report submitted to the Commissioners, states that in order to carry out the work of making daily inspections of the gas furnished, four inspection stations were maintained. The illuminating gas furnished by the Washington Gas Company was submitted to 823 official photometric tests, showing a range of candlepower from 16.04 minimum to 27.63 maximum candlepower. The office inspected and proved 6,825 gas meters, being 3,034 new meters, 1,300 repaired meters, 1,057 consumers' complaint meters, and 1,118 company complaint meters. An inspection fee of 20 cents was collected for each repaired meter and 50 cents for each new or complaint meter, the fees thus collected during the year amounting to \$2,979.30.

Fire and Police

CHICAGO, ILL.—Chief Justice Olson is investigating the alleged irregularities and charges of graft and blackmail in the service of municipal court warrants. The judges in all sections of the city who have been secretly watching the manner in which policemen executed these warrants report that the police have been following a policy of favoritism and bold protection; instead of serving warrants promptly, it is alleged the police have allowed well-known criminals to escape, have made no efforts at all to arrest notorious resort keepers, and in some cases have arrested innocent persons to allow the real offenders to go free. In other cases officers have been employed by private parties to collect debts and have forged warrants with which to blackmail their victims.

HAWTHORNE, ILL.—Pits for the storing of coal, so constructed that they may be flooded in case of chemical combustion, have been built by the American Electric Power Company. A plot about 320 feet by 75 feet has been excavated to a depth of about 12 feet, and lined and subdivided by concrete walls into twelve 80-feet by 25-feet pits. Their bottom is the clay subsoil, and the walls are carried about four feet above ground. The pits can be flooded by means of a 12-inch water main. The longitudinal division walls are wide enough to carry the tracks on which the coal is delivered.

MOBILE, ALA.—An ordinance has been passed enlarging the duties of the Chief of the Fire Department and his assistant. It provides that they shall inspect all public and private fire hydrants in the city at least once each month and examine all valves, couplings and openings, see that they are kept in order, and that the water pressure is fully maintained. The Chief and his assistant must also become conversant with all electric light switches or cut-offs, and with gas cut-offs, so that in emergency cases the Fire Department will be better able to cope with the

situation. The electric light and gas companies are required to furnish the Fire Department with diagrams and locations of connections and cut-offs, and a penalty is imposed for failure to comply.

NEWBURGH, N. Y.—Much dissatisfaction is said to exist among the firemen because of the defective operation of the present fire alarm system, which they declare to be utterly unreliable. Several months ago a petition urging improvement was signed by every fireman in town but before it was presented City Council appropriated \$400 to put the present system in good condition. If any improvement was made, however, it has not been permanent, and a petition is again being circulated to the City Council by James H. Dotzert, veteran member of Washington Steamer No. 4, in behalf of property owners, merchants, business men and members of the Newburgh Fire Department, urgently requesting improvement, or the installation of a fire alarm bell or whistle at some central location.

NEW YORK, N. Y.—The construction of New York's high-pressure fire service is nearly finished so far as the pipe laying is concerned. The contractors, the Continental Asphalt Paving Company, started this season's work with about thirty-seven miles' work before them. This pipe they have been laying during the summer at the rate of six miles a month. As, on September 28, there remained only three and one-fourth miles to do, General Manager William G. Root feels assured that the work will be finished before winter. Last year, when twenty-three miles were laid, the speed of the work exceeded anything hitherto known, in this part of the country at least, but that record seems small now.

SAN ANTONIO, TEX.—Fire Chief Phil Wright has announced his intention to enforce the ordinance requiring that chimneys be swept regularly. He says it is necessary that every chimney be swept thoroughly in order to prevent it from catching fire. Most of them have been idle during the summer months, and the soot which accumulated in them last winter has been allowed to remain; that spider webs and other matter have collected in them and may cause a fire when the chimney is again put in use. The Chief says arrests will follow every chimney fire unless the occupant or owner can show a receipt that his or her chimney has been swept in accordance with the law. There are chimney sweeps who will respond to all calls to have chimneys swept and charge only a nominal fee.

WASHINGTON, D. C.—William T. Belt, Chief Engineer of the Fire Department, in his annual estimates, showing the amount of money needed to run that Department for the fiscal year commencing July 1, 1908, and which are to be included in the estimates of the Commissioners to be presented to Congress, has asked for an appropriation of \$920,790. The amount makes provision for seven new fire engine companies, a half dozen new fire engines, a 65-foot aerial hook-and-ladder truck, horseless engines, in addition to an automobile equipped with certain fire appliances, such as are now carried on a hose wagon.

Government and Finance

MILWAUKEE, WIS.—Victor L. Berger is working on a city charter which he says he will place before the charter convention if such a meeting is held next spring. Mr. Berger states that he has secured copies not only of charters of cities of the United States, but also of foreign countries. The new charter will contain but twenty typewritten pages, he says, whereas a copy of the present charter would take more than 100.

MUSKOGEE, I. T.—The people of this city recently refused to vote \$300,000 in bonds for public improvements to be expended under the present system of government,

and the Mayor and members of the City Council have issued a statement in which they recommend changing the present charter of the city to one which provides for a commission government, and say they are willing to resign to that end. A number of other towns in the Territory contemplate changing their form of government from a Council to a Commission in the near future, as the Constitution of the State provides that the charter of a city may be changed by a vote of the people, the Governor of the State signing the new charter.

WASHINGTON, D. C.—The estimated revenues from all sources of the District of Columbia government, exclusive of the Water Department, for the fiscal year ending June 30, 1909, total \$6,017,030, divided as follows:

Taxes: Realty, current and arrears; personal, current and arrears; special reimbursable, penalty and interest on; dog; advertising.....	\$5,083,250
Fees: Sealer of weights and measures, surveyor, justice of the peace, dog pound, inspector of gas and meters, tax certificates, landing and storing wood..	59,975
Permits: Health department, sewer and gas, water, railing, building, electrical.....	18,100
Fines: Police Court, Supreme Court, D. C.....	110,250
Licenses: Liquor, plumbers', insurance, engineers', miscellaneous	663,815
Rents: Markets, hay scale and fish wharves, wharves, street terminal buildings.....	32,800
Street extension assessments and interest.....	30,000
Public convenience stations.....	100
Pipe line	740
Bathing beach receipts.....	500
Sale of old material	3,500
Municipal lodging house, labor and inmates.....	450
Sale of old houses	250
Tuition, public schools	300
Forfeit of contractors' deposits.....	500
Miscellaneous items	3,500
Charges for recording deeds	9,000

Total\$6,017,030

The revenue for the Water Department for the fiscal year ended June 30, 1907, was \$535,950.20, making the total amount \$6,446,980.20.

WINDSOR, ONT.—Early in the next session of the Ontario Legislature a bill will be introduced which will give every city in the province the privilege of placing its financial government in the hands of a Commission of four Comptrollers. The introduction of this bill is the result of a resolution considered at the meeting of the Union of Canadian Municipalities, recently held in Toronto. Already an act is in effect which gives such privileges to cities of over 100,000 population. Mayor Wigle says he hopes to see the plan introduced into Windsor if the bill is passed. The plan is very simple and the board of Comptrollers does not do away with the City Council. The disbursements of the city's funds simply come under the authority of the board.

Refuse Collection and Disposal

ARCADIA, LA.—The women of the city have been taking an active interest in the matter of clean streets and the Civic League has named a committee of ladies to request each business man to place a trash barrel in front of his establishment, and ask the Mayor to employ some one to empty the receptacles three times a week.

DETROIT, MICH.—The Board of Health, after investigating complaints of nuisances caused by accumulations of refuse and rubbish in alleys, says that, except for a brief period after the annual spring cleaning, nearly all the alleys are untidy, and many of them are in a filthy and unsanitary condition; beside being unsightly, the conditions are a menace to health, principally from the propagation of the disease-spreading house fly, and the odors which enter dwellings, factories and office buildings are a great annoyance. As the city now owns no place to which alley

refuse and cleanings may be removed for disposal in any manner, the Board has suggested to Council the urgent necessity, not only of a regular and systematic cleaning of the alleys, but also the establishment of an incinerating plant.

PITTSBURG, PA.—Dr. J. F. Edwards, Superintendent of the Bureau of Health, says it costs the taxpayers of the city \$500,000 to have their rubbish and ashes hauled away from their premises, but that if the city did the work it would cost only \$75,000, which, with a disposal plant, could be cut to \$10,000 or \$15,000. Dr. Edwards has a resolution before Councils which advocates provision for an expert Consulting Engineer to investigate and report on the collection and disposal of ashes, sweepings, rubbish, etc., and empowering him to prepare plans and specifications for the proper collection and disposal of such material.

ST. LOUIS, MO.—Street Commissioner James C. Travilla has instituted a system of fining street sprinkling contractors for failure to properly carry out their contracts, which has considerably improved the sprinkling of city streets. The Department turns slips over to the Auditor showing the amount of the fines and he deducts that sum from the monthly check to the contractor. In some instances the deductions from a single contract have amounted to \$800 a month. Most of the fines are imposed through reports of Inspectors and Assistant Commissioner Stroup, who spends most of his time inspecting the streets and keeping in touch with the several street improvement crews. The trips are made in an automobile, of which the Department has two, and when a street is found not to have been sprinkled within a certain time and getting dusty another inspection is made, and the contractor fined. The total fines for the year will amount to probably more than \$15,000. The contractors have strenuously objected to the system and threatened to bid higher for the next contract, but Commissioner Travilla says there is enough competition to prevent a serious increase in the cost of the work, and demands that all specifications be carried out according to the contracts while the present contractors are doing the work.

Parks and City Beauty

BRIDGEPORT, CONN.—The Board of Park Commissioners has announced its intention to undertake immediately the extension of the Boulevard at Seaside Park, which it is designed ultimately to extend across Fayerweather's Island and the harbor at Black Rock, to the mainland. Preliminary work has been done on the filling in of mud flats and bringing to a fair grade a strip one hundred feet in width west of the Barnum Dike, and Council has been asked to co-operate in order to secure title by condemnation proceedings for further improvements. A public hearing was held on Monday last relative to the extension of the park so as to include the remaining land and mud flats west of the Dike and south of Cedar street.

EL PASO, TEX.—It is designed to make all street parking a part of the park system, and R. A. Harris, Park Commissioner, has been directed by Council to take the matter up with property owners on residence streets in the north part of the city, and endeavor to induce them to extend the curbing on both sides of the street, thus narrowing the driveway, for the purpose of putting trees and floral ornamentations in the parkings. The city officials believe that if the Park Commissioner is successful in getting property owners for ten blocks on any one street to agree to the proposition that others will follow, and that eventually every residence street in the city will be a boulevard.

JERSEY CITY, N. J.—The Street and Water Board officials complain that some of the trees planted by the city are dying because of leaking gas mains, which permit the

ground to be permeated by gas to the great detriment of shade trees. Proof is found by testing gases which arise to the top of a bottle in which is placed a sample of sod from near the roots of trees affected.

OAKLAND, CAL.—By the sale of Park Bonds to the Oakland Savings Bank, \$992,000 are available with which to secure the park lands intended to beautify the city which were included in the bond election call. Mayor Mott says all the tracts contemplated to be acquired will be purchased as rapidly as arrangements for the passing of title can be made, as the city is in position to expend most of the money immediately in the improvements, and this work will be taken up at once.

ROCHESTER, N. Y.—Five hundred and two acres of land have been given to the city by Dr. Durand and George Easman for park purposes. The park has a frontage on Lake Ontario of a mile, is about a mile deep and a mile and a half wide. On the lake front there are fine bluffs overlooking the water, affording magnificent views, and the scenery is said to be on a par with that in the Adirondacks. It is proposed to build three dams in as many ravines, making two artificial lakes, the shore line of one of which will be nearly two miles and inhabited by all kinds of wild fowl. The second lake will have a shore line of about five miles, the entire shore being wooded. A deep bed of gravel has been found on the property which can be used in making roads. It has been suggested that the present railroad be converted into an electric road, with possibly three stops along the lake front, as the park is too big to walk around.

SPRINGFIELD, MASS.—The Park Board is rigidly enforcing its new rules. Notices have been posted along the boulevard notifying teamsters that heavy loads are prohibited and all classes of vehicles which are prohibited from the park drives are ordered off the avenue. This street is a part of Washington Park just as much as any driveway within that enclosure, and the Board has instructed its officers to enforce the regulations on the street just the same as in the park itself. There is a disposition on the part of some to question the authority of the Board but the street belongs to the park district and is subject to the same regulations and control as the park itself. This is stipulated in the law which provides for the creation of park districts and park boulevards.

WASHINGTON, D. C.—The annual report of H. S. Curtis, Supervisor of Playgrounds, states that two new playgrounds have been established, one for white and one for colored children, and three sites have been bought. The attendance was 123,500 for the ten weeks included in the summer period. In his report, Supervisor Curtis recommends the installation of bath-houses at all the playgrounds to maintain a standard of cleanliness among the children. He also advocates swimming pools, and wants heavy hedge fences placed about the playgrounds. He explains that it is difficult to control a playground and to protect the apparatus and the neighbors from annoyance at night when the playgrounds are not fenced. He says playgrounds should be made as beautiful as parks, by the planting of trees and ornamental shrubbery where space can be found for it.

Rapid Transit

CHICAGO, ILL.—The Chicago City Railway Company intends to put in service 300 street cars provided with slot machines for the automatic collection of fares. The cars will be provided with a wide rear platform, divided by a rail in the center into two passageways, the one on the right for the use of passengers boarding the car and the one on the left for those alighting. The front platform of the car is to be used for exit only, the door at that end closing automatically as the car starts.

CLEVELAND, O.—The Cleveland Electric Company declares that no company can make money on three-cent fares; but the new company, which operates a short line through a sparsely settled district, has demonstrated that it can pay dividends on that basis. It has declared its readiness to extend its service as soon as the courts permit, and proposes a three-cent fare, cash or ticket, with universal transfers. It will accept franchises giving the city plenary power to regulate service, even to the extent of revoking grants. It agrees that its profits shall be limited to 6 per cent. of the actual cost of construction, any excess to be used only for the benefit of the public, its books and accounts to be at all times accessible, and that the city may acquire absolute ownership at any time. Council is considering the matter.

DES MOINES, IA.—W. W. Wise, of the Board of Public Works, believes it would pay the city to adopt the plan of having the City Railway sprinkle the streets along its line by attaching sprinkling cans to the cars. Mr. Wise has recently visited Memphis, Tenn., and Cleveland, O., and says in both cities this method is employed, and results in a great saving to each municipality. He says that 100 miles of streets can be sprinkled for a trifling amount, and that it costs Memphis but \$600 per year to sprinkle her streets; that the street railways in many cities are required to sprinkle between the rails, but in Memphis and Cleveland the streets by this method are kept free from dust from curb to curb.

McKEESPORT, PA.—With a view to obtaining fast trolley passenger service, a resolution has been introduced in Council by Councilman Hitchens which provides that the Mayor and one member from each branch of Council shall compose a committee of three to confer with the Pittsburgh Railways Company to see if the company will not agree to run, at certain hours during the day, fast express cars between this city and Pittsburgh. The resolution was passed because it was thought that the ten-trip ticket issued by the railroads will not be issued after this month.

NEW YORK, N. Y.—The Public Service Commission has voted to build the Fourth avenue, Fort Hamilton and Coney Island subway, in the Borough of Brooklyn, at an estimated cost of \$25,000,000, and bids will be advertised at once. Commissioner McCarroll said he believed the subway was needed for the growth and development of the city, and also as a part of a comprehensive transit system, and that he thought it would do much to relieve congestion on Brooklyn bridge and at Flatbush avenue and Fulton street, Brooklyn. Because he decided that the increases offered voluntarily by the Interborough Rapid Transit Company on the Subway and "L" lines approached generally the demand of the Commission for a 20 per cent. increase, Commissioner Eustis has closed the hearing on those orders.

VIENNA, AUSTRIA.—As a concession to the public crusade against street noises which has been going on in the city for some time, the tramway conductors have been ordered to stop the use of the whistle as a signal for starting the cars, and in its place use a small trumpet. This, however, will only be a temporary institution. Experiments have been made with an optical signal, which have proved so successful that its introduction is only a matter of a short time. The new signal is in the form of a small electric lamp placed just in front of the motorman. When the conductor wants to signal the driver he presses a button which lights the lamp, and the car is started immediately, sparing the passengers and the public generally the noise of whistles, trumpets or gongs. It only remains for the public to exercise ordinary vigilance when crossing the streets, and the tramcar drivers will not find it necessary to ring the alarm gong, thereby lessening still further the noises of street traffic.

Miscellaneous

CHATTANOOGA, TENN.—A resolution has been unanimously passed by the Board of Public Works that in future all contractors submitting bids for work to be done under the supervision of the Board will have to subscribe to an oath stating that the bids are made without any understanding or agreement, secret or otherwise, between the contractor and any other bidder, and that the contractor bidding is not interested, directly or indirectly, in the bid or bids of any other concern.

CRESTON, O.—Coulter street, in this village, is disappearing, and in sections water to the depth of fifty feet now stands where the road once was. It is believed that the crust of an underground lake is giving away, which is causing the street to sink. A short time ago a railway locomotive and several cars disappeared. Later another street near Coulter street sank several feet. Now the appearance of additional fissures in the earth along Coulter street indicates that other sections may fall at any moment, and those living in the neighborhood are leaving as rapidly as possible.

JACKSONVILLE, FLA.—Council has unanimously passed an ordinance which makes it unlawful to have barbed-wire fences fronting on any street in the city, and such fences as are now in place, and fronting on the city streets, are to be torn down within ten days. Notice to the effect is to be given property-owners by the City Marshal, and where personal service of notice cannot be given, posting of printed notice on the premises is to be deemed sufficient. The Chief of Police is to instruct patrolmen to report any and all violations of the ordinance, which are to be punishable by fine of not more than \$500, or imprisonment not to exceed three months.

NORTH HUDSON, N. J.—It is believed by the citizens of this town, and many of those adjacent, that the new boom the under-river tunnels will give the State will weld all the communities within the four river counties of New Jersey into a metropolis that may eventually rival New York, in population at least. The first step, naturally, is the consolidation of contiguous municipalities into one, to be followed by the subsequent merging of the nuclei thus formed into the great city of the future. The consolidation must begin somewhere, and North Hudson is so eager for the union that its citizens feel that it would be a good place to begin.

WARSAW, IND.—Mayor Charles A. Rigdon, in a message to the City Council, recommends that a new water franchise be prepared; that the waters of Center Lake be protected from pollution; that a more efficient fire-fighting equipment be purchased; that good gas be provided citizens; that an ordinance compelling the Pennsylvania Railroad Company to build a train shed and secondary passenger station be enforced; that persons owing for cemetery lots be compelled to settle; that fenders be placed on street cars and cars run at a moderate rate of speed in the city limits; that arc lights be placed at railway crossings, and that sewers and sidewalks be constructed.

WASHINGTON, D. C.—The District Commissioners will undoubtedly again ask Congress to make the next annual appropriation for the District in terms sufficiently large to permit the inauguration, upon a basis of long-time payments, of certain necessary works of a permanent character, in spite of the fact that Congress has regularly rejected the proposition and insisted upon an immediate payment basis. The projects which now appear among the urgent needs of the District are the Anacostia River improvement, the construction of an additional water-supply conduit, the completion of the municipal hospital establishment, the installation of high-pressure fire service and the construction of a system of suburban sewers, the cost of which will go far into the millions.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Municipal Interest

STREET OBSTRUCTION

Bensel Construction Co. vs. Homer.—A city may by reasonable ordinance limit the amount of space in the street which may be occupied by material assembled for the erection of a building on an abutting lot. A violation of such an ordinance is, as against a member of the public using the street for ordinary travel and injured by reason of such violation, per se wrongful and negligent, and the court may so instruct the jury. Pedestrians have the right to use the entire highway, and are not confined to the sidewalks alone. If a pedestrian leaves the sidewalk and enters upon the portion of the highway devoted primarily to vehicles, the surroundings may require of him the exercise of a greater amount of care and caution for his own protection than if he had remained upon the sidewalk; but the question of his negligence under the circumstances is one for the jury. There being evidence justifying a finding that the defendant was negligent; that the plaintiff was injured as the proximate result thereof, and that the plaintiff was not guilty of such contributory negligence as to defeat a recovery, the verdict in the latter's favor is sustained.—Court of Appeals of Georgia.

DEFECTIVE STREET

Mayor and City Council of Americus vs. Johnson.—Municipal corporations are required to keep their streets and sidewalks in safe condition for travel in the ordinary modes by day and by night, and are responsible if they fail to exercise ordinary and reasonable care and diligence for the accomplishment of this end. A traveler using a street or sidewalk is required to use ordinary care to avoid being injured by any defect therein or obstruction thereon. What amount of lookout for defects or obstructions he must observe in order to meet this requirement is a question of fact for the jury, to be determined by the circumstances of each case. An instruction to the jury which, in attempting to define ordinary care, makes the jurors the standard of what is a prudent person is erroneous. In order to bind a municipal corporation for the care of a strip of land offered by an abutting owner as a sidewalk, acceptance by the proper city authorities must be shown. The acceptance may be express or implied. If express, it can be shown only by the minutes of the official tribunal; if implied, it may be shown by proof that the sidewalk was worked and used under authority of the Council, or other body having such matters in charge. Testimony that work was done upon the sidewalk by the street hands of the municipality, or by its Engineer, or under the direction of its Street Committee, is admissible for the purpose of raising the inference that the work was done by authority of the municipal body.—Court of Appeals of Georgia.

CHANGE OF GRADE—DAMAGES

Mayor, Etc., of Macon vs. Daley et al.—The fact that a change in the grade of a street is made, in conformity to an ordinance of a municipality acting in its legislative capacity, does not prevent an abutting property-owner from recovering consequential damages to such property resulting from said public work. The Constitution of 1877 gives to the citizen the right to recover consequential damage to his property resulting from work of a public character, although such work may be authorized by legislative action. This constitutional provision limits the power of eminent domain in the State, and in counties and municipalities as agents of the State. It is remedial in character, and for the purpose of giving property-holders additional security, and should be liberally construed. The measure of damages to abutting property caused by raising the grade of a street is the difference between the market value of the property before and after the change of the grade. On the trial of an action for the recovery of such damages, it is competent to prove the cost of the filling in of the property and raising it to the level of the street as a fact or circumstance illustrating the general question of market value. Where the court instructed the jury fully, clearly, and correctly as to the measure of damages, there was no material error in failing to charge specifically that, in arriving at market value any enhanced value of the property caused by the street improvement should be set off against any damages proved. In determining the question of market value, the jury necessarily would have to consider consequential enhancement, as well as consequential damage.—Court of Appeals of Georgia.

WATER—PUBLIC USE—RIPARIAN RIGHTS.

Hercules Water Co. vs. Fernandez et al.—The complaint of a water company to condemn water rights, alleging a necessity therefor, for the purpose of supplying the inhabitants of the town of H. and the town of P. and of "other places in said county" of C. with water, does not, as it must, show a necessity for condemnation exclusively for a public use, under the code authorizing the exercise of the right of eminent domain in behalf of canals, ditches, etc., for conducting or storing water "for the use of the inhabitants of any county," city, village, or town. Where in condemnation proceedings there is a question of fact, on conflicting evidence, as to whether the use for which the property is sought to be condemned is one of those authorized by the statute, the finding of the trial court thereon is conclusive, to the same extent as the findings of fact in other cases; but its finding that a certain use, not one of those for which the statute authorizes condemnation, is a public use, is not binding; only the uses enumerated by the statute being public uses for the purpose of condemnation. The measure of damages for condemnation of a riparian owner's water rights is the depreciation in the value of the whole of his tract of land adjacent to the stream, depending as well on the depth of the land as its frontage on the stream.—Court of Appeals of California.

INITIATIVE AND REFERENDUM

In re Pfahler.—The initiative provision of the Los Angeles City Charter was upheld, as against, among others, the contention that the provision violated the constitutional guaranty of a republican form of government. This constitutional provision, the majority of the court maintains, if it did refer to States, did not refer to local affairs in the State. A dissenting opinion, holding a contrary view, was, however, filed.—Supreme Court of California.

IMPROVEMENT ASSESSED AGAINST RAILWAY

Northern Pacific Railway Co. vs. City of Seattle.—The city of Seattle by ordinance created a local district for the improvement of certain streets by the construction of sidewalks. The district consisted of all real estate to the depth of 120 feet abutting on each side of the street improved. The railroad company had an abutting right of way ranging from 60 to 100 feet wide, occupied by one track, but suitable for sidetracks and spurs to various industrial establishments. The railway contended that it received no benefit from the improvement. The court held that the ordinance was a legislative determination by the City Council, authorized by the Code and the city charter, that all property within the district would be benefited. With occasional exceptions involving fraudulent or arbitrary action, such legislative determination does not become the subject of review by the courts, but is final. Absolute equality in distributing the burdens of taxation cannot be attained. An approximation to equality is all that is possible, but in reaching this point, the present or prospective use of the property cannot enter into the calculations.—Supreme Court of Washington.

DEDICATION OF COMMON

County of Gordon et al. vs. Mayor, Etc., of Town of Calhoun.—John P. King, in pursuance of an obligation previously entered into, granted, sold, and conveyed to the Judges of the Inferior Court of Gordon County certain described lands, including the tract in controversy, and inserted in the tenendum clause the following provision: "Provided, however, and it is hereby understood, that all that part of said piece of land which lies south of the road leading from the depot to the Oothcaloga Mill, and which has not heretofore been laid off into town lots, shall remain as a Common for the town of Calhoun, and no lots shall be sold or timber cut from the same without the joint consent of the Judges of the Inferior Court of Gordon County, for time being, and of said John P. King." Held, that this constituted an express and immediate dedication as to that part of said land as a Common; and the stipulation that no lots should be sold nor timber cut from the land without the joint consent of the Judges of the Inferior Court and of the grantor was not a reservation of any property rights or title inconsistent with the use and occupation of said town as a Common; the fact that the town of Calhoun had not been incorporated at the time of the dedication of the Common would not destroy the effectiveness of the dedication; the organization and incorporation of the town being then contemplated, and shortly thereafter accomplished, and the deed with all its terms and conditions having been accepted by the Judges of the Inferior Court, and the town, after its organization and incorporation, having accepted, used, and enjoyed the Common for a long period of time.—Supreme Court of Georgia.

CIVIL SERVICE—VETERAN

Ranson vs. City of Boston.—Where a veteran laborer employed by a city under the classified civil service was illegally discharged, and the trial court found that other laborers, not veterans and not classified as gardeners or sodders, were given employment of a kind to which plaintiff was entitled during the time for which he claimed pay, it was no answer to defendant's liability for periods during the winter of 1898 to 1901, when plaintiff did not work, that defendant was entitled to retain for continuous service persons classified as sodders and gardeners, as against laborers, by giving such sodders and gardeners temporary work in the winter of the kind which plaintiff was competent to do. Where, in a prior mandamus proceeding, the court held that relator, a veteran civil service employee of the city of Boston, had been illegally discharged and was entitled to mandamus to compel his reinstatement, such decision constituted an adjudication that relator had not acquiesced in his discharge, which was conclusive between the parties. The Statutes of 1896 provided that no veteran holding an employment in the public service of any city should be removed or suspended except after full hearing before the Mayor, with the right to be present and to be represented by counsel, etc., and the Statutes of 1904, relating to other classes of officers and employees than veterans, makes the right of hearing dependent on request. Held, that a veteran civil service employee of the city of Boston was not required to apply for a hearing in order to entitle him thereto before he could be legally moved. Where a veteran civil service employee was wrongfully removed without a hearing, he was not entitled to recover more than nominal damages for the term which expired after he should have known that his service would no longer be accepted, he having made no effort thereafter to gain other employment.—Supreme Judicial Court of Massachusetts.

LAND FOR HIGHWAY—NOMINAL DAMAGES

Wilkins vs. City of Manchester.—Where proceedings were instituted for the taking of land for a highway, and the landowner appealed from the award of the Commissioners, he was entitled to have the damages assessed by a jury on the appeal, by the express provision of the Public Statutes. Prior to 1895 the owner of land platted it and recorded the plat, showing the lots into which it was divided and a proposed street. Prior to November 11, 1895, he had sold all the lots but one, bounding them by such street, and on that day sold the last remaining lot, together with the location of the street, to plaintiff's predecessor in title, after which the Mayor and Aldermen of the city laid out the avenue and awarded plaintiff one cent as damages for the taking of the property. Held, that under such facts plaintiff was only entitled to nominal damages.—Supreme Court of New Hampshire.

ACTION FOR SALARY

Walters vs. City of New York.—Plaintiff, a veteran civil service employee of the fifth grade, was changed by a reduction of his salary to an employee of the fourth grade, without an opportunity to explain, and, after performing the same services, sued to recover the amount of the reduction of his salary, the complaint definitely alleging wherein the reduction of such salary was illegal, but did not allege that the change in salary merely marked a transfer of plaintiff from one grade to another, in violation of the civil service regulations. Held, that the court would not supply a finding that such was the effect of the change of salary in support of a judgment for plaintiff for the amount of the reduction of salary.—Appellate Division, Supreme Court of New York.

OPTION TO PURCHASE WATER PLANT

Livermore et al. vs. Mayor, Etc., of City of Millville et al.—Under the act approved April 2, 1888, the city of Millville had power to contract with a water company for a supply of water, and to include in the contract an option to acquire the entire plant of the water company. The option to acquire the plant by purchase, at a price to be fixed by commissioners, two of whom are to be appointed by each party, fixes, in the statutory sense, the terms upon which the plant is to be acquired. The resolution of City Council to acquire the plant, provided the purchase price should be fixed at a sum agreeable to the city, is, the water company assenting, a valid resolution.—Court of Errors and Appeals of New Jersey.

PROHIBITION ORDINANCE

Sawyer vs. City of Blakeley.—A city whose charter contains a "general welfare clause" may legally pass an ordinance prohibiting the possession of intoxicating liquors kept for the purposes of illegal sale. Under such an ordinance, proof of the possession of the liquor and an illegal sale thereof will authorize a conviction. The courts will not pass upon moot constitutional questions.—Court of Appeals of Georgia.

MUNICIPAL DEVICES**Gasoline Fire Engine**

There is now building in Schenectady, N. Y., at the plant of the Westinghouse Company, a gasoline fire engine which may, it is claimed, revolutionize the fire engine trade, and which, when put in use in the Schenectady Fire Department, will be the first of its particular type in the United States. When the city authorities recently determined upon the erection of the new hose house in Brandywine avenue, bids were asked for from four of the leading fire engine manufacturers for a steam fire engine of the fourth class, throwing about 400 to 500 gallons per minute. Each company bid \$5,000. But from the Westinghouse Company came a bid for a gasoline fire engine, powered as a third-class engine, for \$2,060. The bid of the Westinghouse Company was accepted, and the engine is now in course of construction and will be delivered December 1. The machine is equipped with a pump worked by a gasoline engine of 28 horsepower, capable of throwing 600 gallons per minute. In operation it will be more economical than a steam engine and will not require the services of an experienced engineer. In appearance it will differ considerably from the ordinary fire engine, for there will be no stack and much of the brass work of the common engine will be missing. It will be much lighter in weight and, therefore, easier to handle. The machine is not an automobile in any sense, for the gasoline engine is merely attached to the pump and the outfit is drawn by horses, the same as the other apparatus.

Pay-as-You-Enter Street Cars

Cars of a new type, called the pay-as-you-enter cars, have been adopted by the Philadelphia Rapid Transit Company, Philadelphia, Pa., and an order for 200 of them has been placed with the J. G. Brill Company, the builders. Other orders will follow until the entire system is supplied with the new cars. The management of the traction company estimates that it will save a million dollars a year that is now lost to it through the inability of the conductors to collect all the fares. The new type of car differs considerably from the cars now in use by the Rapid Transit Company. Its rear platform is from seven to nine feet long, and is fitted with an entrance and exit for passengers. The conductor stands at the door and collects fares as passengers enter. The platform accommodates between 25 and 30 passengers, and they enter the car through a door on the left side, while passengers leaving the car make their exit by a door on the right side. An exit is also provided on the front platform, but passengers are not permitted to enter from the front.

New Iron Telegraph Pole

A model of the new Perdue-Hitt steel telegraph and telephone pole was recently erected on Ellis street, Augusta, Ga. The model was built at the Lombard Iron Works. It is made in sections about seven feet in length, which are bolted together. Each section is composed of two circular, rim-like bases, from one to the other of which run four galvanized iron pipes, fastened to the bases, or end pieces, by means of long steel rods threaded and bolted at the ends. The upper base has a lug by which it is joined to the section above. Fitted into each other these form a hinge, through which is bolted a strong steel bar about five inches long. The sections are also fastened by means of four strong steel bolts at each joint. The first two sections, as well as the five-foot section which is placed in the ground, are the same size—i. e., about twelve inches across the base—while the three above are gradually tapered. Screwed into the upper end of this top section is a transverse cross-arm of steel piping, at each end of which are elbows, into which will be threaded the glass insulators. When completed the pole stands about thirty-five feet in height. The steel structure, presenting no solid surface to wind and galvanized under the ground, should last for years. Linemen may also climb it without spikes.

NEWS OF THE SOCIETIES

American Society of Municipal Improvements.—The fourteenth annual convention of this society, held at Detroit, Mich., October 1 to 4, was not attended by as large a number of delegates as some others have been, but was nevertheless considered a very successful one by those present. An indication of the interest taken in it was the presence of quite a number of members from the South—Birmingham, Mobile, and cities in Missouri, Arkansas and Tennessee.

The first meeting, at 3 P. M. Tuesday, was immediately adjourned to permit the members to witness the sinking to place of the first section of the double tunnel under the Detroit River, for the use of the trains of the Vanderbilt roads. These tunnels are to consist of steel tubes, 23 feet interior diameter, surrounded with concrete, having a least thickness of four feet and lined with the same material. In the evening the delegates were entertained at the theater. At the Wednesday morning session the society was welcomed by David E. Heineman, President of Council, representing the Mayor, who was absent from the city. First Vice-President James Owen replied, and this was followed by the President's annual address and the report of the Secretary and Treasurer. A paper was read by Frank Aldrich, of Detroit, describing the methods and results of cleaning the streets of that city by flushing machines. He reported their experience as being favorable. In the discussion, A. Prescott Folwell suggested that the fear in some quarters that this method would cause deposits in sewers possibly arose from experience with flushing by fire hose, which, as generally conducted, did often result; but which was a different process altogether. Charles H. Rust feared that the pavements themselves would be injured, but believed even so that the cleanliness and healthfulness resulting were worth the price. L. H. Weissleder stated that flushing did fill sewers in Cincinnati, O. C. C. Brown said that experiments made in Indianapolis, Ind., had led them to prefer a jet as nearly horizontal as possible, and with low pressure; thus operated he had found that good cement filler in brick pavements, even ten years old, was not injured. E. A. Fisher stated that in Rochester, N. Y., flushing by ordinary sprinkling carts immediately followed sweeping, thus removing only the dirt which the broom left. This was done on asphalt streets only. They have no catch-basins, but found no resulting sewer deposits. Streets are flushed two or three times a week, about 1½ gallons of water per square yard being used in each application. Horace Andrews advocated some method of securing washed sidewalks to supplement clean roadways. The report of the Committee on Sewerage was presented by Charles H. Rust, the chairman, who also read a paper entitled "Septic Tanks and Bacteria Beds in a Section of Toronto." A paper discussing some "Phenomena in Crushing of Sewer Conduits," by J. N. Hazelhurst, was read by the Secretary in the absence of the author; also one by Clarence D. Pollock, giving a year's review of "Street Paving and Cleaning and Refuse Disposal."

On Wednesday evening the members and guests were taken in an automobile over part of the city and the beautiful Belle Isle Park. This island, two miles long and three-quarters wide, is all devoted to park purposes, and is probably

the most unique and successful municipal project of the kind in this country. In the evening Prof. A. H. Griffith, director of the Detroit Museum of Art, gave a very interesting descriptive address of the City of Detroit. This was followed by two papers by J. W. Howard, entitled "Paving Brick Specifications and Tests for Best Qualities" and "Density of Pavements a Most Important Element of Their Durability." Following this was the report of the Executive Committee and a short business session. A paper contributed by Fred P. Smith, entitled "Final Disposition of Garbage and Rubbish," was read by the Secretary in the absence of the author. William A. Howell read a paper entitled "A Recent Investigation of Various Bituminous Materials Used in Expansion Joints of Brick Pavements," in which he stated that the City of Newark, of whose streets he is engineer, has been investigating this matter with the assistance of their testing laboratory.

On Thursday morning, after receiving the report of the Finance Committee, E. A. Fisher presented, as chairman, the report of the Committee on Electric Street Lighting; also a paper entitled "Ornamental Street Lighting," in which he described the methods and devices employed in a number of cities of the country. L. H. Weissleder read a paper entitled "New Methods of Lighting," in which he described briefly the helium, tungsten and tantalum lamps, referring to the experiments conducted by Columbia University, and stating that he considered the first mentioned of these new lamps as being the best for ordinary service. This paper was discussed by C. C. Brown, William J. Parks and others, Mr. Parks making the motion that the Street Lighting Committee be requested to report next year upon the most desirable method of measuring the intensity of street lights. Description of the street lighting system of Detroit was then given by the Superintendent of that department, the financial statement being specially complete in its inclusion of interest, depreciation, lost taxes and apparently all proper charges against the department, and after allowances for all of these the cost of the street lighting was considerably less than \$60 a year per arc lamp. Shortly before noon the delegates and guests boarded an excursion steamer in the Detroit River, on which they were shown the beauties of that river both above and below the city, and were then taken to the Canadian side to inspect the plant of Hiram Walker & Sons.

Thursday evening, after the election of officers and the selection of a meeting place for next year's convention, a paper describing "The Municipal Electrical Conduit System of the City of Auburn, N. Y.," was read by J. Walter Ackerman. The Committee on Street Paving, A. W. Dow, chairman, presented its report. A paper entitled "The Guarantee Clause in Paving Specifications of the City of Chicago," by John B. Hittell, was read and discussed quite thoroughly by Messrs. Howard, Owen and others. George W. Tillson then read a paper discussing "Specifications for Treating Wood Paving Blocks," in which he compared the requirements of the various cities which have prepared specifications for this material. "Back Filling Trenches" was treated in a paper by George T. Warren, which paper, practically entire, will be found on another page of this issue. Horace Andrews presented the report of the Committee on Street Government and Legislation. The National Municipal

League was represented at this convention by A. Julius Freiberg, who addressed the society upon the aims of the league and the desirability of an arrangement between it and the society for their mutual benefit.

On Friday morning the pavements of St. Joseph, Mo., were described by E. A. Harper. In the author's absence, the Secretary read a paper by F. P. Smith entitled "What Steps Should a City Take to Insure Good Asphalt Paving." James Owen then presented the report of the Committee on Park Development and Maintenance, of which he was chairman. Alcide Chausse, chairman of the Committee on Fire Protection, read a paper upon "Fire Protection" and also one prepared by F. W. Fitzpatrick, on behalf of the International Society of Building Inspectors, entitled "Improvements in Building Construction from the Point of View of Fire Protection." J. W. Howard, chairman of the Committee on Municipal Data and Statistics, read a paper dealing with "Natural Monopolies in Cities." After a vote of thanks to the various city officials and others who had assisted in entertaining the society, and to the outgoing President, the convention was adjourned.

The American Asphaltum and Rubber Co. presented an exhibit of their Pioneer asphalt filler for brick paving and Pioneer mineral rubber pipe coating. The Reinforced Concrete Pipe Co. had upon exhibition several sections of their pipe of various sizes and numerous photographs of work in which their pipe was being used. Warren Brothers Co. exhibited photographs, etc., of bitulithic paving, and the A. L. Barber Co. of their asphalt paving. The MUNICIPAL JOURNAL AND ENGINEER, at their booth, distributed sample copies of recent numbers of the paper.

Next year the society will meet at Atlantic City, N. J. The officers elected for the coming year were: George W. Tillson, President; James Owen, First Vice-President; Julian Kendrick, Second Vice-President; Fred Gidding, Third Vice-President; A. Prescott Folwell, Secretary; L. V. Christy, Treasurer.

American Institute of Electrical Engineers.—At the next regular meeting, October 11, in the Engineers' Building auditorium, 33 West Thirty-ninth street, New York City, a paper on "The Grounded Neutral, With and Without Series Resistance, in High-tension Systems" will be read by Paul M. Lincoln, engineer of power division of the Westinghouse Electric and Manufacturing Co. The following members have been invited to take part in the discussion: P. Junkersfeld, O. S. Lyford, Jr., C. P. Steinmetz and Philip Torchio.

Firemen's Association of the State of Pennsylvania.—The twenty-eighth annual convention was held in Pittsburg, October 1-4. Trips to points of interest, parades, banquets and drills made up the program. Chief Humphries, of Pittsburg, exhibited the workings of the water tower, the turret deluge and the self-propelling engine. Officers were elected as follows: President, Robert B. Keller, Stroudsburg; Vice-Presidents, R. A. Beisel of Hazelton, W. B. Dennison of Columbia, Frank L. Gilkeson of Bristol, and Thomas A. Wagner of Sellersville; Recording Secretary, W. W. Wunder, Reading; Corresponding Secretary, James A. Green, Carlisle; Treasurer, A. L. Reichenbach. The city of Shamokin was chosen for holding the next convention.

Calendar of Meetings

- October 8-11.**
International Association of Fire Engineers.—Thirty-fifth Annual Convention, Washington, D. C.—James McFall, Secretary, Roanoke, Va.
- October 10-12.**
American Electro-Chemical Society.—Fall meeting, Chemists' Club, 108 West 55th street, New York City.—Dr. Joseph W. Richards, Lehigh University, South Bethlehem, Pa.
- October 14-16.**
American Street and Interurban Railway Engineering Association.—Annual convention, Atlantic City, N. J.—S. W. Mower, Secretary, Southwestern Traction Co., London, Ont.
- October 14-18.**
American Street and Interurban Railway Association.—Annual convention, Atlantic City, N. J.—B. V. Swenson, Secretary, Engineering Societies Building, 33 West Thirty-ninth street, New York.
- October 15-17.**
Southern New York Firemen's Association.—Convention and tournament, Greenport, N. Y.—J. H. Downing, Secretary, 211 Duffield street, Brooklyn, N. Y.
- October 15-17.**
Association of Railway Superintendents of Bridges and Buildings.—Annual meeting, Milwaukee, Wis.—S. F. Patterson, Secretary, Concord, N. H.
- October 16-18.**
American Gas Institute.—Second annual meeting, Washington, D. C.—Jas. W. Dunbar, Secretary, New Albany, Ind.
- November 12.**
National Tax Association.—Conference, Columbus, O.
- November 19.**
National Municipal League.—Annual convention, Providence, R. I. (in conjunction with the American Civic Association).—Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.
- November 25-27.**
National Drainage Association.—Annual congress, Johns Hopkins University, Baltimore, Md.—A. G. Bernard, Chairman, Executive Committee, 1420 New York avenue, Washington, D. C.
- December 26.**
International Sanitary Convention of American Republics.—Third international meeting, Mexico City.—Surgeon General Walter Wyman, Chairman, International Sanitary Bureau, Public Health and Marine Hospital Service, Washington, D. C.

TRADE NOTES

New York Electrical Show.—The Electrical Exhibition, Madison Square Garden, held September 30-October 4, although designed especially to interest the public in domestic uses of electricity, had a fairly good exhibition of street-lighting devices, as well as underground conduits and cables. A standard city arc-light post, made by the J. L. Mott Iron Works, 118 Fifth avenue, New York, occupies a prominent position in the center of the hall.

The General Electric Company exhibits as its leading street light the "Magnetite," which emits strong, horizontal rays of clear white. The electric arc, which does not shift its position, is found between an upper copper electrode and a lower carbon containing a core of magnetite compound. This light uses a current of 80 volts, 4 amperes. In candle-power it is claimed to equal an ordinary enclosed arc using $7\frac{1}{2}$ amperes.

The Westinghouse Electric and Manufacturing Company exhibited as its leading street-lighting proposition the Nernst six-glow lamp, made by their subsidiary corporation, the Nernst Lamp Company, of Pittsburg, Pa. The nucleus, or light-emitting elements of this lamp, is termed a glow, and is composed of the oxides of rare earths mixed with a suitable binding material. The light is agreeable and

seems to be coming into favor for street lighting.

The Beck Flaming Lamp Company, 30 Greenwich avenue, New York, N. Y., exhibits its 3,000 candle-power lamp, which is now being manufactured with a handsome copper case, as well as with the more ordinary enameled iron. Up to the present this company has put about 1,000 lamps on the market, but a factory has now been completed in Greenwich avenue, New York City, which has a capacity of 15,000 lamps a year. Colonel Jacob Ruppert, of New York, is largely interested in the enterprise. The lamp burns a specially prepared carbon, containing a core of certain oxides of rare earths, which is the means by which the large candle-power light is secured with a small consumption of current. A current of 10 amperes, 50 volts, 500 watts an hour, is claimed to give a 3,000 candle-power light.

The Excello Arc Lamp Company, 24-26 East Twenty-first street, New York City, exhibited its high-efficiency arc light, which is extensively used in Europe. The carbon of this lamp has a copper core, which is pulverized as the carbon burns and is caught by the economizer at the base of the lamp. These lamps are installed in pairs, and use a current of 110 volts, 10 amperes, to the pair.

Turning to the matter of conduits, the photographs exhibited by G. M. Gest, expert electrical subway contractor, 77 Broadway, New York City, attracted favorable notice. This company announces that it is prepared to take contracts of any size in any city to lay any sort of a conduit, and has actually done work in about 150 cities. An ingenious bracket for holding a cable in position in a manhole is shown, which is capable of more accurate and easier adjustment than any device hitherto used. During the past summer the company has laid a new kind of a conduit for the Poughkeepsie Light and Power Company, Poughkeepsie, N. Y. In laying this the manholes were built and trench dug; then sections of 3-inch hose were stretched from one manhole to the other and filled with water under pressure. Rich gravel concrete was then deposited around the sections of hose. After the concrete set the water was drained from the hose, the sections of hose pulled out, and the conduit is complete.

The Consolidated Telephone and Electric Subway Company, 52 Duane street, New York City, has an extensive and interesting exhibit, showing manholes and junction boxes, built of standard size, with interior exposed to view with cables, just as if in actual use. This exhibition of the inside workings of underground affairs in New York seems to be much appreciated by visitors.

The India Rubber and Gutta Percha Insulating Company, 253 Broadway, New York, had an exhibition of cables of all sorts and sizes; cables with heavy insulation and lead armour for high-tension currents, and cables with light insulation for the cable proper and comparatively heavy insulation for the individual wires, suitable for use for carrying signal wires.

A. Grothwell, 136 Liberty street, New York City, exhibits his "Mogul" paints, made in thirteen grades for various insulating purposes.

Turbine Generators.—The General Electric Company, Schenectady, N. Y., has issued a handsomely printed illustrated pamphlet describing the Curtis steam turbine generator. The efficiency of these turbines is indicated by the sale of units amounting to a total of nearly 1,-

000,000 Kw. Under the heading of "Economy," the records of detailed tests of 9,000 Kw., 5,000 Kw., 2,500 Kw. and 1,000 Kw. turbines. Other subjects treated in detail are the vertical shaft type, floor space, building materials and steam, clearances, flow of steam, balance, lubrication, the construction of buckets, governors, foundation, low-pressure turbines, vacuum, regulation, parallel operation and ventilation. An interesting illustration shows the interior of the Fish Street Station in Chicago, where four 9,000 Kw. and four 5,000 Kw. generators are set.

Map.—A proof of the new city map of Beaumont, Tex., has been received by Bryant & Vauchetet, of Beaumont, from the Rand, McNally Lithographing Company, of New York City. The map is large, 40 by 60 inches, outside measure, and shows additions and subdivisions adjoining the city.

Change of Ownership.—The Van Buren Water Company, formerly owned by the late Thomas Connor, of Joplin, Mo., and associates, has passed into the hands of Van Buren men, the plant having been sold to J. E. Powers for \$100,000. The reorganized directorate consists of J. E. Powers, President and Manager; A. N. Kellogg, Vice-President; L. N. Southmayd, Secretary; H. C. Pernot and W. A. Steele.

Concrete Construction.—The Association of American Portland Cement Manufacturers, Land Title Building, Philadelphia, Pa., has issued Bulletin 16, which will be mailed to any persons who may be interested. The bulletin contains a paper by Mr. G. S. Larned, C. E., Boston, Mass., on "Regulation and Control of Concrete Construction."

Concrete Poles.—The Richmond Concrete Pole Manufacturing Company, Richmond, Ind., will supply its poles for the use of the Terre Haute, Indiana & Eastern Railway for use in Richmond. The company is receiving many letters of inquiry regarding its invention. A number of railroads have sent representatives to the city to investigate, and as a result have resolved to give them a trial. Prominent engineers have requested agency privileges for certain sections of the country, and a bright future is predicted for the business.

Street Castings.—E. M. Burr & Company, Champaign, Ill., in Catalogue No. 11, describes a number of castings of their manufacture used for various purposes in connection with street work. The catch-basin ring and cover is made with a flat or oval grate for use on unpaved streets, and with a flat cover for use on paved streets. A curb inlet is made of "cowcatcher" pattern. A curb inlet, made in several styles, is for use where a basin is set next to the curb; style No. 3 set, of circular pattern, for use in connection with concrete curbing and sidewalk, is a neat pattern. A circular inlet, admitting large quantities of water, is for use in sunken places in parks, where the raised grate will not interfere with traffic. Gutter or crossing plates are made with diamond-finished tops.

Street Sprinkling.—The American Car Sprinkling Company, Worcester, Mass., recently gave an exhibition to an Aldermanic committee from Taunton of the workings of their sprinkling car in New Bedford. In New Bedford a contract was first obtained for one year, later for three years, and now for three cars for five years. Sixteen New England cities have tried these sprinkling cars, and none have abandoned their use.

PERSONALS

BRANSFORD, JOHN S., Mayor of Salt Lake City, Utah, with Councilmen Mulvey, Tudenheim and Holley, is making a trip through the middle west inspecting the lighting systems in various cities. A. J. Davis, President of the Council, is Acting Mayor of the City.

BURLEIGH, RUFUS G., Mayor of Franklin, N. H., for two terms, passed away recently in his home city, aged 65 years.

CORCORAN, THOMAS J., former Mayor of Pittston, Pa., died recently, aged 51 years.

DUTCH, W. A., has been appointed Superintendent of Construction of the sewer system at Douglass, Ariz., by the American Light and Water Company, Kansas City, Mo., vice C. R. Moore, resigned.

DOUGLASS, W. J., Engineer of Bridges for the District of Columbia, who constructed the Connecticut Avenue and the Piney Run bridges, has recently rendered great assistance to City Engineer B. T. Fendall, of Baltimore, Md., in preparing plans for the \$180,000 concrete bridge to be built over Gwynns Falls, on Edmondson Avenue, in the Monumental City, for which \$65,000 has been appropriated for preliminary plans, drawings and incidentals for starting the work.

DU BOIS, WILLIAM H. R., former President of the Board of Aldermen of Bridgeport, Conn., President of the H. M. Purdy Company, mason building contractors, has been named as Building Commissioner of the city by Mayor Marcus L. Reynolds, to succeed Charles Bottomley, deceased.

DUKES, J. W. H., has been inaugurated as Mayor of Orangeburg, S. C., succeeding Dr. Thomas C. Doyle, who retires to private life after twelve years continuous service as member of the Council, the longest continuous service of any man in municipal affairs in the city. The new Council is composed of Abial Lathrop, re-elected as Mayor pro tem.; W. G. Smith, I. W. Bowman, J. X. Weeks, N. W. Wertz and H. L. Smoak.

ELLSWORTH, JAMES W., multi-millionaire, has presented Hudson, O., with a lighting plant, sewerage system and water works.

EVANS, HARRY E., Trenton, N. J., has been appointed Park Commissioner by Mayor F. W. Gnichtel, to succeed Harry D. Leavitt, who was appointed a member of the Board of School Commissioners.

FITZPATRICK, E. E., general foreman for Doyle & Schwartz on sewer construction in Wichita, Kan., has resigned to accept a position as Superintendent of Construction of the sewer being built at Winfield, Kan.

FONES, DR. CIVILION, Mayor of Bridgeport, Conn., many years ago, died suddenly at the home of his son, Dr. C. Fones, in his home city recently, aged 71 years.

GRAY, ROBERT, has been elected City Engineer of Bristol, Va.

GREENLIE, DAVID, Mayor of Passaic, N. J., has returned from Europe, where he spent his vacation.

GRIFFIN, E. W. W., Assessor of the District of Columbia, with Mrs. Griffin, spent three weeks at Atlantic City, N. J., and has resumed his official duties much improved in health.

HEINS, GEORGE L., State Architect of New York since 1899, when he was appointed by Gov. Roosevelt, died recently of meningitis at his summer home at Lake Mohegan, N. Y.

LYONS, PAT J., Mayor of Mobile, Ala., has returned after a tour of northern cities, including several across the Canadian border, and has again tackled the affairs of State.

MENIRY, WILLIAM H., has been elected City Engineer of Bessemer, Ala.

OWEN, DR. HUBLEY, Philadelphia, Pa., has been appointed Chief Surgeon of the Bureau of Police by Henry Clay, Director

of Public Safety, at a salary of \$2,500 per annum; he is a personal friend of Mayor John E. Reyburn and the youngest man ever appointed to the position, being but 26 years of age.

PARKER, ALTON B., Esopus, N. Y., former Democratic candidate for President of the United States, has been retained by Corporation Counsel Francis K. Pendleton, of New York City, with a fee of \$25,000, to act as special counsel for the city in arguing the exceptions to the report of Special Referee Arthur H. Masten, who held the law fixing the price of gas in the city at 80 cents a thousand cubic feet to be unconstitutional. Corporation Counsel Pendleton also appointed Austin G. Fox special counsel for the city, with a fee of \$25,000, in actions pending against the city brought by the Edison Electric Illuminating Company and the Kings County Lighting Company.

PEIX, CHARLES H., Jr., Danbury, Conn., Commissioner of Fairfield County, has resigned from the Board, in order to devote his entire time to his business affairs, and John Brophy, of Ridgefield, has been sworn in as associate to Judge Whitman S. Mead, of Greenwich, Chairman and Commissioner Simeon Pease.

THOMPSON, WILLIAM, Mayor of Kalamazoo, Mich., has recommended that Health Officer Levy be given police power, in order to protect himself and make arrests while on tours of inspection, and the Board of Police and Fire Commissioners have conferred the honor.

WATERHOUSE, ELMER H., Chief of Police of Portland, Me., is compiling from the old city records a history of the Police Department from the year 1797, when Portland was known by the name of Falmouth and in the commonwealth of Massachusetts.

MAHOOL, J. BARRY, Mayor of Baltimore, Md., has made the following appointments, which have been confirmed:

City Engineer—Benjamin T. Fendall; reappointed; salary, \$4,500.

Harbor Engineer and President of the Harbor Board—Oscar F. Lackey, reappointed; salary, \$4,000.

Water Engineer and President of the Water Board—Alfred M. Quick, reappointed; salary, \$4,000.

Commissioner of Health—Dr. James Bosley, reappointed; salary, \$3,500.

City Librarian—Wilbur F. Coyle, reappointed; salary, \$1,500.

Commissioner of Street Cleaning—Col. Joseph L. Wickes, reappointed; salary, \$2,500.

Superintendent of Lamps and Lighting—Robert J. McCuen, reappointed; salary, \$2,000.

Superintendent of Public Buildings—George Thomas Ames, to succeed George F. Jones; salary, \$1,500.

City Collector—Ex-Gov. Frank Brown; salary, \$2,000 and fees, amounting to from \$5,000 to \$10,000 a year; succeeds Henry Williams.

Collector of Water Rents and Licenses—John Spencer Clarke, reappointed; salary, \$2,500.

City Solicitor—William Cabell Bruce, reappointed; salary, \$4,500.

Inspector of Buildings—Edward D. Preston, reappointed; salary, \$3,000.

Finance Commission, John M. Littig, President; Elisha H. Perkins, Municipal Art Commission; W. Hall Harris, Maryland Historical Society; Bernard N. Baker, Johns Hopkins University; Henry Walters, Peabody Institute; Gen. Ferdinand C. Latrobe, Maryland Institute; J. B. Noel Wyatt, Architectural Club; Maj. Richard M. Venable, Park Board; Joseph Evans Sperry, Charcoal Club.

Board of Fire Commissioners—Edward M. Parrish, President, in place of George W. Gail, Jr.; Gilles J. Shaw and A. Roszel Cathcart; Mr. Parrish and Mr. Cathcart are members of the present board; salary, \$1,000 each.

Members of the Board of Park Commissioners—Gen. Alfred E. Booth, in place of Edward D. Booz.

Member of the Fire Department Examining Board—George May, reappointed.

Members of the Water Board, with Engineer Quick as President—John E. Semmes, Charles T. Mitchell, Henry B. Gilpin and J. Henry Strohmeier.

Members of the Harbor Board, with Engineer Lackey as President—William D. Santer, J. Frank Thompson, Clarence Shriver and Marcellus H. Goodrich.

Members of the Jail Board—Leigh Bonsal, President, reappointed; Moses N. Frank, Edward Raine, Charles A. Moran, William G. Knapp, Edward F. Burke, George Filbert, George M. Griffith and John Kronmiller.

Members of the Free Public Bath Commission—Eugene Levering, President, reappointed; William H. Morriss, Dr. Mary Sherwood, William A. Eisenbrandt, Dr. Joseph E. Gichner, Oregon Milton Dennis and Adam C. Huthwelker.

City Directors in the Management of the Valley Railroad of Virginia—Jacob W. Hook and W. Cook Sanderson, Vice Gen. J. Stuart MacDonald and Judge Thomas Ireland Elliott.

PATENT CLAIMS

866,628. Well Cleaning Machine. Jonas H. Crowson, Atlanta, Tex. Serial No. 384,405.

A well cleaning device including spring pressed jaws each provided with a scoop, spreader arms pivotally connected with the jaws and pivotally connected with each other, and a depending trigger forming the pivotal connection between the inner ends of the spreader arms.

866,698. Road Scarifier. Benjamin W. Tucker, Newark, N. J. Serial No. 294,006.

An implement for the purpose specified, having a body portion, supporting wheels under the same, a gang of picks carried at the end of said body, and means for putting said picks in and out of their operative position, all of the supporting wheels of the implement being in front of the picks when the latter are in operative position.

866,772. Door for Fire Alarm Boxes. Frank G. Campbell, Washington, D. C. Serial No. 285,351.

A fire alarm box having an alarm controlling handle located upon the exterior thereof and a lock the bolt of which is controllable by said handle or by a key.

866,801. Voting Machine. John H. McElroy, Chicago, Ill. Serial No. 703,068. Renewed Sept. 21, 1903. Serial No. 174,114.

In a voting machine, the combination with the registers, of plural series of register selecting members controlling the operation of said registers, means to limit the number of register setting members that may be simultaneously operated in each series, and interlocking mechanism between two or more series of said members to compel the movement of a member of one of said series before any member of another series can be moved.

866,833. Construction of Concrete Aqueducts, Tunnels, Subways, and the Like. James T. Wilson, New York, N. Y. Serial No. 357,802.

The method herein described of forming the walls of an aqueduct, tunnel or other structure which consists in providing a casing for the side and top walls, side and top molds adapted to fit in said casing and to be moved longitudinally thereof, a bottom mold operating in connection with the side molds and adapted to be moved therewith, and moving said molds forwardly step by step and filling in the spaces thus formed in said casing with concrete to form the side and top walls and filling in the bottom portion with concrete to form the bottom wall.

867,047. Excavating Apparatus. John C. Junkin, Drayton, N. D., assignor of one-half to George J. Patterson, Bowesmont, N. D. Serial No. 324,020.

In an excavating apparatus, the combination with a vertically adjustable excavating device, of a fluid actuated counter-balancing device therefor, and means independent of said counter-balancing device for moving the said excavating device vertically, substantially as described.

867,089. Apparatus for Killing Bacteria in Liquids. Joseph Willmann, Shelton, Conn. Serial No. 340,042.

An apparatus of the character described comprising means for automatically receiving and holding a plurality of charges of liquid in a continuous manner at a pasteurizing temperature a period of time necessary to kill the germs contained in said liquid, and means for automatically and successively discharging the said charges.

867,130. Grate Supporting Structure for Sidewalks. Gustav Harman, Holyoke, Mass., assignor to Harman and Derichs, Holyoke, Mass., a Firm. Serial No. 355,485.

A grate supporting structure for sidewalks consisting of separated opposite side members, and a member disposed right angularly between ends of, and uniting, said opposite side members, all said members having outwardly projecting base flanges, said uniting member having a horizontal, inwardly projecting ledge below its upper edge, for supporting one end of a grate, and said opposite members supporting a bar between their end portions and remotely opposite from said ledge.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewage Water Supply and Public Lighting—Fire Equipment and Supplies—Buildings, Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Street Improvements				
Illinois	Chicago	October 10, 11 A.M.	Paving with brick West Ravenswood Park.	John J. Hanberg, Com'r Pub. Wks.
Missouri	Kansas City	October 10, 11 A.M.	Paving brick, 3 contracts; asphalt, 6; artificial stone sidewalks; 9; grading, 4.	E. A. Harper, City Engineer.
Ohio	Youngstown	October 10, noon	Grading Falls Avenue from Hillman to Edwards Street.	W. H. McMillin, Clk. Bd. Pub. Ser.
Pennsylvania	Harrisburg	October 10	Constructing 3 roads, 16 ft. wide, 21,538 ft. long, N. Huntington Twp.; 11,445 ft. long, Shirley Twp.; 1 mile long, German Twp.	Jos. W. Hunter, Highway Com'r. County Commissioners.
Indiana	Noblesville	October 11, 10 A.M.	Constructing 2½ miles of gravel road.	F. G. Ward, Com'r Pub. Works.
New York	Buffalo	October 11, 11 A.M.	Paving 4 streets; macadamizing Domedion Street.	Stanley Stugley, Pres. Board.
Ohio	Cincinnati	October 11, noon	Constructing County roads in Section No. 600.	C. H. Sexton, City Engineer.
Oklahoma	Enid	October 11, noon	Asphalt paving, 11,500 sq. yds.; grading, curbing, etc.	N. W. Cowgill, County Auditor.
Indiana	Noblesville	October 11, 1 P.M.	Constructing 3½ miles of gravel road.	
Ohio	Dayton	October 11	Furnishing asphalt for street repair purposes in car-load quantities; also paving 6 streets with brick, asphalt, bituminous macadam.	W. A. Maynes, Clk. Bd. Pub. Serv.
Indiana	Rockport	October 12, 10 A.M.	Constructing concrete pavements in Main and Third Streets.	Robert Atkinson, City Clerk.
Alabama	Riverton	October 12, 11 A.M.	Paving, riprap and excavation at Colbert Shoals Canal.	Maj. Wm. W. Harts, Eng. Corps.
Indiana	Fort Wayne	October 12, 11 A.M.	Constructing 6,020 ft. macadam road, Monroe township.	Geo. W. Lindemuth, Co. Auditor.
Alabama	Gadsden	October 12, noon	Paving 20,000 sq. yds. sidewalk; 30,000 lin. ft. combined curb and gutter.	W. M. Wilson, City Engineer.
Pennsylvania	Williamsport	October 12, noon	Paving 4,200 sq. yds. with asphalt, brick or other material.	James F. Fisher, City Engineer.
Indiana	Crown Point	October 12	Constructing cement sidewalks.	L. A. Southworth, Pres. B. P. W.
Wisconsin	Racine	October 12	Constructing Portland cement curb on Asylum Street.	P. H. Connolly, Clk. Bd. Pub. Wks.
Alabama	Athens	October 12	Constructing certain highways.	C. D. Glaze, Pres. Road Com'n.
Ohio	East Cleveland	October 12	Constructing culvert on Pitney Road.	A. B. Lea, County Surveyor.
Indiana	Sunman	October 14, 6 P.M.	Laying cement sidewalks.	E. R. Behlmer, Town Clerk.
Illinois	Jacksonville	October 14	Brick paving, 38,461 sq. yds.; comb. curb and gutter, 24,160 ft.	J. L. Smelters, City Engineer.
Colorado	Fort Collins	October 14	Improving 3½ miles of wagon road to Loveland.	T. W. Jaycox, Denver, State Eng.
Colorado	Creede	October 14	Constructing a flume and wagon road on Willow Creek.	T. W. Jaycox, Denver, State Eng.
Ohio	Athens	October 14	Brick or block paving, grading, curbing, etc., Mulberry Street.	W. B. Golden, City Clerk.
Illinois	Chicago	October 14	Constructing cement sidewalks on portions of numerous streets.	H. S. Dietrich, Pres. Bd. Local Imp.
Hawaii	Honolulu	October 15, noon	Furnishing 14,000 bbls. Portland cement; 16,500 tons broken stone and 7,000 tons sand.	Capt. C. W. Orwell, Eng'r Corps.
Delaware	Wilmington	October 15, noon	Constructing road in New Castle Hundred, 2½ miles long.	F. A. Price, Highway Com'r.
Maryland	Denton	October 15, noon	Grading and macadamizing 1½ miles of road.	Isaac L. Dukes, County Clerk.
Washington	Olympia	October 15, 2 P.M.	Grading and macadamizing State Aid Road No. 2.	J. B. Weddell, City Engineer.
Washington	Bellingham	October 15	Grading and macadamizing State Aid Road No. 3.	Jos. M. Snow, Olympia, St. Hwy B. I.
Pennsylvania	Sheraden	October 15	Grading, curbing, and paving Berwyn Ave.	C. E. Owens, Boro. Engineer.
Florida	Ocala	October 15	Laying 14,001 sq. yds. vitrified brick pavement.	S. Sistrunk, City Clerk.
New York	Brooklyn	October 16, 11 A.M.	Regulating and repaving various streets.	Bird S. Coler, Boro. Pres.
Ontario	Ottawa	October 16, 5 P.M.	Constructing asphalt and bituminous paving plant.	N. J. Ker, City Engineer.
Ohio	Toledo	October 16	Repairing Monroe St., stone road, etc.	D. T. Davies, Jr., County Auditor.
Arkansas	Ft. Logan H. Root	October 17	Constructing 2-pipe concrete road culvert.	Quartermaster.
Idaho	Nampa	October 19, 8 P.M.	Constructing bitulithic pavement on various streets.	Claude Duval, City Clerk.
Indiana	Logansport	October 21, noon	Constructing Rice road of gravel, between Cass and Carroll Co's.	Geo. W. Cann, Co. Auditor.
New Jersey	Camden	October 21, 8 P.M.	Laying cement walks around Public Buildings.	L. E. Farnham, City Engineer.
Ohio	Richmond	October 26	Macadamizing, laying curb and gutter, retaining wall, Franklin Street.	R. L. Jordan, Village Clerk.
Ohio	Mount Healthy	October 27	Constructing cement walks in St. Joseph street.	Frank Williamson, Village Clerk.
Ohio	Cleveland	October 30	Repairing, pavements, Wooster pike, Middleburg and Strongville townships.	A. B. Lea, County Surveyor.
Indiana	Peru	November 4, noon	Establishing, grading, draining, paving 2½ miles of free gravel roads in Richland township.	Charles Griswold, County Auditor.
Water Supply				
Delaware	Fort Du Pont	October 10, 11 A.M.	Remodeling water system; also building 150,000-gal. tank.	Capt. J. L. Knowlton, Q. M.
New York	Buffalo	October 10, 11 A.M.	Furnishing four 600 h.p. boilers for pumping station.	F. G. Ward, Com'r. Pub. Wks.
Iowa	Primghar	October 10, 8 P.M.	Constructing water works for city.	M. Tschirzi & Son, Dubuque, Engrs.
New York	New York	October 10	Furn. 40 h.p. boilers, pumps, etc., and operating to remove water, 2 points, 24 hrs. per day and High Bridge cut, 8 hrs. per day.	Louis F. Haffen, Boro. Bronx.
Rhode Island	Warren	October 12, noon	Constructing 3 filters, ½ acre each; sediment action basin and filter basin, inc. foundation for pumping station; also pumping station, boilers, etc.; cost, \$125,000.	Chas. H. Manchester, Sec'y Bristo & Warren Water Works.
Ohio	Ashland	October 14	Furn. 350 tons c. i. pipe, digging trench and laying 8,500 ft. pipe; also erecting bldgs. at pumping station; bldg. foundations for new machinery: furn. 14,000 lbs. pig lead.	Board of Public Affairs.
New York	Buffalo	October 15, 11 A.M.	Sale and removal of two pumping engines.	F. G. Ward, Com'r. Pub. Wks.
Illinois	Mt. Carroll	October 15	Furnishing water pump of 1,500,000 gals. every 24 hours.	C. N. Freezer, City Clerk.
Texas	Bay City	October 20	Constructing water works, to cost about \$18,000.	J. Sutherland, Mayor.
Pennsylvania	Philadelphia	October 22, noon	Improvement, extension, and filtration of water supply, inc.; electric equipment for Torresdale filters; pumping engines for Lardner Point; boilers, Torresdale Station; centrifugal pumping engine for Torresdale Station; magnesite covering and painting at Lardner's Point Station.	Geo. R. Stearns, Dr. D. P. W.
Kansas	Marion	October 22, 3 P.M.	Furnishing c. i. pipe and specials; hydrants and valves; furn. and installing machinery, laying pipe, constructing well, power house, foundations, etc.	Burns & McDonnell, Kan. City, Mo.
Nebraska	Beaver City	October 22	Constructing system of air pressure water works.	W. L. Leonard, City Clerk.
Georgia	Atlanta	October 23, 4 P.M.	Furn. and erecting, complete, sectional washing pressure filter plant of 8 units, each 8 ft. diam. and 20 ft. long, 4,000,000 gals. per minute, 220 ft. for the municipality.	Park Woodward, Bd. Water Comrs.
India	Rangoon	October 31		Ogilvy, Gillanders & Co., 67 Sun Court, Cornhill, London E.C., Eng.
Maryland	Berlin	October 31	Franchise for water works, electric light and ice plant.	Orlando Harrison, Mayor.
Arizona	Tucson	November 4, 8 P.M.	Furn. material and constructing water works system.	Frank S. Treat, City Recorder.
Manitoba	Winnipeg	November 15, noon	Supplying 15 miles of assorted water pipe.	H. N. Rutman, City Engineer.
Arizona	Phoenix	November 15, 3:30 P.M.	Labor and material for water works improvements.	Robert Craig, Superintendent.
Idaho	Shelley	December 1	Constructing water works, to cost \$6,500.	N. N. Holm, Engineer.
Sewerage				
Delaware	Fort Du Pont	October 10, 11 A.M.	Remodeling sewer and water systems, etc.	Capt. J. L. Knowlton, Q. M.
Minnesota	St. Paul	October 10, 2 P.M.	Constructing sewer in Lee Ave. and Sturgis St.	R. L. Gorman, Clk. Bd. Pub. Wks.
Pennsylvania	McKeesport	October 10, 4 P.M.	Constructing 370 ft. 15-in. terra cotta sewer, in two streets.	C. E. Soles, City Comptroller.
Idaho	Waipetto	October 10	Constructing system of pipe sewers, to cost \$6,000.	W. S. Kremer, Engineer.
New Jersey	Overbrook	October 10	Furn. f.o.b. cars Overbrook, 8,000 ft. tile drain pipe, various sizes.	G. F. Drum, Newark, Co. Eng.
Minnesota	Hallock	October 10	Reinforced concrete septic tank, 40 x 7 x 10 ft. inside dimen.	J. E. Carroll, Crookston, Cons. Eng.

Sewerage—Continued.

Indiana.....	Aurora.....	October 11, 7 P.M.	Constructing 6 to 20-in. vit. pipe sewer, etc., Dist. No. 1; cost, \$12,500.....	Fred D. Johnston, City Clerk.
Washington....	Seattle.....	October 12.....	Constructing Green Lake section, \$750,000, of north trunk sewer; total cost, \$2,325,000, inc. 2 miles of tunneling.....	R. H. Thomson, City Engineer.
Ohio.....	Steubenville....	October 14, noon....	Constructing sewer in Clinton Street, 232 ft. 36-in., 1,126 ft. 30-in. brick sewer, and 1,721 ft. 12- to 24-in. pipe sewer.....	T. W. Vance, Clk. Bd. Pub. Service.
Missouri.....	Carthage.....	October 14, 4 P.M.	Constructing 3,258 ft. 8-in., 410 ft. 10-in. sewers, manholes, etc.	Wm. Kohlman, City Engineer.
Ohio.....	Chagrin Falls....	October 14.....	Constructing sewerage system sewerage purification plant, sand filters, etc.; cost, \$60,000.....	W. P. Rice Eng. Co., Cleveland.
Tennessee.....	Chattanooga....	October 15, 2:30 P.M.	Constructing brick main sewer, etc., Chestnut St., inc. 465 ft. 36x54-in., 465 ft. 38x57-in., 468 ft. 42x63-in., 466 ft. 46x60-in., 2,032 ft. 50x75-in. egg-shaped sewer, and 175 ft. 60-in. circular sewer.....	Robert Hooke, City Engineer.
New York.....	Oneida.....	October 15, 5 P.M.	Constructing sewer in Williams, Elm and Lake Streets.....	J. E. M. Scott, City Engineer.
Indiana.....	Elkhart.....	October 15.....	Constructing large sewer in East Jackson Street.....	A. M. Smith, City Engineer.
Minnesota.....	Cloquet.....	October 19, noon....	Constructing sanitary sewer in Arch Street and Avenue C.....	Joseph Loisel, City Clerk.
Minnesota.....	St. Paul.....	October 21.....	Constructing 1,500 ft. sewer; manholes, catch-basins, etc.....	H. J. Spencer, City Clerk.
Ohio.....	Steubenville....	October 21.....	Constructing 18-in. pipe in Wells Street.....	T. W. Vance, Clk. Bd. Pub. Service.
Utah.....	Vintah & Ouray Agency.....	October 23, 2 P.M.	Labor and material for complete sewer system.....	Agency.
New York.....	Auburn.....	December 3.....	Constructing Fourth, Fifth, Sixth, and Seventh Ward sewer and disposal plant.....	J. Walter Ackerman, City Eng.

Public Buildings

Kentucky.....	Louisville.....	October 10, noon....	Erecting a police station.....	Fred Erhart, 409 Norton Bldg., Archt. Park Board.
New York.....	New York.....	October 10, 3 P.M.	Constructing public comfort station in Bronx Park.....	F. G. Ward, Com'r Pub. Works.
New York.....	Buffalo.....	October 11, 11 A.M.	Installing 2 new boilers in Central High School.....	Capt. Chas. C. Walcutt, Jr.
Arizona.....	Whipple Bar'cks.	October 12, 10 A.M.	Constructing a post hospital.....	John J. Hanberg, Com'r Pub. Wks.
Illinois.....	Chicago.....	October 12, 11 A.M.	Labor and material for erecting truck house.....	Andrew J. Bryan, New Orleans, Arch.
Louisiana.....	Covington.....	October 12, 4 P.M.	Erecting, complete, new public school house.....	Joseph Bernel, Boro. Pres.
New York.....	New York.....	October 14, 11 A.M.	Rebuilding interior Queens Co. Court House, Long Island City.....	Robt. Hebbard, Com'r Charities.
New York.....	New York.....	October 14, 2:30 P.M.	Constructing, etc., complete, 6 ward bldgs., Sea View Hospital.....	Wm. M. Meeker, Passaic, Arch.
New Jersey.....	Woodbridge.....	October 14, 7:30 P.M.	Erecting addition to school house.....	H. L. Gay, Architect.
California.....	San Diego.....	October 14, 7:30 P.M.	Erecting brick or rein. concrete school building, 16 rooms.....	County Commissioners, Harley.
Idaho.....	Arco.....	October 14.....	Erecting a county jail.....	E. S. Hall, County Clerk.
Wisconsin.....	Green Bay.....	October 15, noon....	Erecting Court House, County jail and Sheriff's residence of stone and brick; to cost \$300,000.....	L. M. Weathers Co., Memphis, Tenn., Architects.
Arkansas.....	Osceola.....	October 15, noon....	Erecting \$25,000 school building.....	Owsley & Boucherle, Architects.
Ohio.....	Youngstown....	October 15, noon....	Erecting 4-story granite Court House, 237 x 136 ft. for Mahoning County; estimated cost, \$1,000,000.....	C. G. Keyes, County Clerk.
California.....	Los Angeles....	October 15, 2 P.M.	Extension to Nurses' Home at County Hospital.....	T. Y. Hoffman, Chm. Com.
Pennsylvania...	East Stroudsburg	October 15, 5 P.M.	Constructing normal school building.....	R. B. McGiffon, Toronto, Arch.
Ontario.....	Oakville.....	October 15.....	Erecting a high school.....	Oliver Poy, Sec'y School Board.
Pennsylvania...	Indiana.....	October 15.....	Plans, etc., for 2-story school, 16 rooms, inc. assembly hall, etc., heating, plumbing, electric wiring; cost, \$65,000.....	J. Dempwolf, York, Arch.
Pennsylvania...	Harrisburg....	October 16, noon....	Erecting two buildings, State Lunatic Asylum.....	James Knox Taylor, Wash., D. C.
Ohio.....	Springfield....	October 16, 3 P.M.	Erecting, complete, U. S. Post Office.....	McCormick & French, Wilkes-Barre, Architects.
Pennsylvania...	Harrisburg....	October 16, 3 P.M.	Constructing armories at Grove City and Pine Grove.....	Henry Shipley, Pres. Library Bd.
Iowa.....	Sheldon.....	October 16.....	Furnishing material and erecting a public library.....	Lt. W. E. Holliday, Q. M.
Georgia.....	Fort McPherson..	October 17, 11 A.M.	Constructing brick stable for 76 horses and wagon shed.....	James Knox Taylor, Wash., D. C.
Illinois.....	Peoria.....	October 17, 3 P.M.	Erecting extension and remodeling Federal Building.....	Walker & Morris, Architects.
New Jersey.....	Metuchen.....	October 17.....	Erecting 11-room brick school.....	A. J. O'Reilly, Pres. Bd. Pub. Imp.
Missouri.....	St. Louis.....	October 18, noon....	Fire-proofing east wing of Court House; cost, \$25,000.....	James Knox Taylor, Wash., D. C.
Colorado.....	Denver.....	October 18, 3 P.M.	Constructing extension, etc., to Federal Building.....	Wm. Ernest Spink, Birmingham.
Alabama.....	Montevallo.....	October 18.....	Plumbing, steam heating, etc., addition Girls' Industrial School.....	Town Board.
New York.....	Glen Cove, L. I.	October 19, noon....	Erecting brick and terra cotta Town Hall, to cost \$15,000.....	Secretary, Board Education.
Kansas.....	Washington....	October 20.....	Erecting high school, to cost between \$12,000 and \$15,000.....	Ferry & Clas, Architects.
Wisconsin.....	Milwaukee.....	October 21, noon....	Constructing auditorium bldg.; entire or 14 separate bids for masonry, concrete work, etc.; entire cost, \$475,000.....	Edwin Marks, Sec'y Treas., Bd. Adm.
Louisiana.....	New Orleans....	October 21, noon....	Erecting 6-story fire-proof hospital for Charity Hospital.....	James Knox Taylor, Wash., D. C.
Ohio.....	Cleveland.....	October 21, 3 P.M.	Interior partitions, mason work, mech. equipment, etc., Federal Building.....	James Knox Taylor, Wash., D. C.
Iowa.....	Des Moines.....	October 21, 3 P.M.	Erecting, complete, Federal Building.....	Chas. F. Long, Jersey City, Arch.
New Jersey.....	Secaucus.....	October 22, 8 P.M.	Erecting Borough Hall, lock-up and fire house.....	E. F. Clark, Clk. Bd. Educ.
Wisconsin.....	Galesville.....	October 23.....	Erecting solid brick and stone high school.....	Bernard R. Green, Supt. Constr.
Dist. of Col'bia	Washington....	October 24, 2 P.M.	Concrete, green slate and copper roofing, skylights, National Museum.....	James Knox Taylor, Wash., D. C.
Illinois.....	East St. Louis..	October 28, 3 P.M.	Constructing, complete, Federal Building.....	J. W. Denehie, County Auditor.
Indiana.....	Terre Haute....	October 30, noon....	Constructing new County jail, Sheriff's residence and heating plant, including remodeling present jail.....	James Knox Taylor, Wash., D. C.
Georgia.....	Atlanta.....	October 30, 3 P.M.	Constructing superstructure of Federal Building.....	J. W. Gaddis, Vincennes, Arch.
Indiana.....	Bloomfield.....	November 5, 2 P.M.	Erecting new jail cell house.....	James Knox Taylor, Wash., D. C.
Michigan.....	Flint.....	November 5, 3 P.M.	Constructing, complete, U. S. Post Office.....	Geo. F. Horton, County Engineer.
Texas.....	Houston.....	November 5.....	Plans and specifications for \$500,000 fireproof Court House.....	Garber & Woodward, Archs.
Ohio.....	Cincinnati.....	November 11.....	Constructing school at Westwood, to cost \$150,000.....	James Knox Taylor, Wash., D. C.
Wisconsin.....	Chippewa Falls..	November 15, 3 P.M.	Constructing, complete, U. S. Post Office.....	

Bridges

California.....	Lakeside.....	October 10, 10 A.M.	Constructing pile and trestle bridge over San Diego River.....	Wm. H. Francis, County Clerk.
Texas.....	Houston.....	October 10, noon....	Constructing \$20,000 bridge over San Jacinto River.....	County Auditor.
New York.....	New York.....	October 10, 2 P.M.	Constructing floor, Washington Ave. bridge, Brooklyn.....	J. W. Stevenson, Com'r Bridges.
Kansas.....	Eureka.....	October 10.....	Constructing steel bridge, 60 ft. span, one 24-ft. approach.....	W. H. Bonnett, County Clerk.
Manitoba.....	Fork River.....	October 10.....	Howe truss bridge, two 80-ft. spans over Moss River; also two Howe truss bridges, 60 ft. span over Fork River; wood or steel	D. F. Wilson, Sec'y Treas.
Ohio.....	Xenia.....	October 12, noon....	Erecting low truss bridge, 90 ft. long, 14 ft. clear roadway.....	William Dodds, County Auditor.
Ohio.....	Toledo.....	October 14, 10 A.M.	Bldg. 2 concrete masonry abutments, Washington Township.....	Board of County Commissioners.
California.....	Los Angeles....	October 14, 11 A.M.	Erecting reinforced concrete bridge over Los Angeles River at 7th St., 318 ft. long, 20 ft. wide, contain, 5,440 cu. yds. cement	H. G. Parker, Bridge Engineer.
Ohio.....	Lebanon.....	October 14, 11 A.M.	Bldg. from old material belonging to Co. 5-panel, low truss steel bridge, 76½ ft. on pin centers and concrete; also stone abutments.....	S. A. Stillwell, County Auditor.
Indiana.....	Hammond.....	October 14, noon....	Complete construction, sub- and superstructure and machinery of swing bridge over Calumet River.....	Charles A. Johnson, Co. Auditor.
Ohio.....	Chillicothe....	October 14, noon....	Constructing substructure of bridge over Dry River, Liberty township.....	Charles H. Pinto, Co. Auditor.
Ohio.....	Bellefontaine..	October 14, 1 P.M.	Erecting 67-ft. steel span on concrete abutments, 40-ft. r'dway.....	Chas. M. Richey, Co. Surveyor.
New Brunswick.	Fredericton....	October 14.....	Constructing metal span of Cocagne Mouth Bridge, Kent Co.....	C. H. La Billois, Chm. Com'n.
Manitoba.....	Dunrea.....	October 15, noon....	Constructing steel bridge, two 100-ft. spans, on concrete and boulder masonry foundation over Souris River.....	J. H. Putnam, Mun. Riverside.
Kansas.....	Erie.....	October 15, noon....	Erecting 3 steel or iron bridges, one to cost \$12,000; others, \$6,000 or \$7,000 each; also repair, etc., 2 bridges.....	O. M. Johnson, County Clerk.
Washington....	Tacoma.....	October 15, 2 P.M.	Erecting 180-ft. span steel bridge over Washougal River.....	State Highway Com'r, Olympia.
Idaho.....	Caldwell.....	October 18.....	Constructing wagon bridge over Seven Mile Slough.....	Wm. Noot, Payette, Eng.
China.....	Canton.....	October 19.....	Constructing steel cantilever and girder bridge, 1,102 ft. long, in Front Reach, 740 ft. west of Dutch-folly Fort.....	Canton River Bridge Co., Ltd.
Minnesota.....	Rochester.....	October 21.....	Repairing bridge at Broadway.....	Charles H. Armstrong, City Eng.
Ohio.....	Hamilton.....	October 22.....	Erecting bridge, bulkheads, pipe culvert, etc.....	Chr. Pabst, County Auditor.
Dist. of Col'bia	Washington....	October 24, 10:30 A.M.	Steel railroad bridge for Isthmian Canal Commission.....	E. F. Hodges, Gen. Pur. Agent.
Idaho.....	Hailey.....	October 24.....	Constructing 3 bridges; one across Big Lost River; one across Spring Hollow; one across James Creek.....	W. F. Horne, County Clerk.
Montana.....	Glendire.....	November 15, 2 P.M.	Constructing 34 steel bridges, Lower Yellowstone Project.....	U. S. Reclamation Service.

Lighting and Electricity

North Dakota..	Bismarck.....	October 10.....	Wiring the County Court House.....	I. W. Healy, County Auditor.
Kansas.....	Ft Leavenworth	October 12, 11 A.M.	Furnishing and installing electric fixtures, 13 buildings.....	Capt. J. E. Normoyle, Q. M.
Georgia.....	Savannah.....	October 15, noon....	Lighting sts. by electric light and incandescent lamps; also for furn. electric current for lighting, heat and power.....	Harry Willink, Director.

Lighting and Electricity—Continued

New York.....	New York.....	October 17, 3 P.M.	Wiring, lighting, etc., Sailors' Arch, Prospect Park.....	Sam'l Parsons, Pres. Park Bd.
Alabama.....	Montevallo.....	October 18.....	Electric wiring, plumbing, etc., addition Girls' Indus. School.....	Wm. E. Spink, Birmingham, Arch.
Maryland.....	Berlin.....	October 31.....	Franchise for water works and electric light plant.....	Orlando Harrison, Mayor.
Indiana.....	Seymour.....	November 1.....	Furnishing gas for light and fuel and electricity for light and power.....	Fred Everback, City Clerk.
Illiana.....	Kokomo.....	November 8, 10 A.M.	Furnishing electric lights for streets and public buildings.....	W. T. Meek, City Clerk.
Colorado.....	New Fort Lyon.....	November 9, 11 A.M.	Erecting central power, light and heating plant, Naval Hospital.....	Navy Department, Washington, D.C.
Dist't of Col'bia.	Washington.....	November 14.....	Furn. fire alarm telegraph system, marine electric fixtures, batteries, etc., Isthmian Canal Commission.....	E. F. Hoiges, Gen. Pur. Agent.
South Carolina.	Charleston.....	November 15, noon..	Lighting sts. and public bldgs., 1, 2 or 4 yrs., inc. 500 arc. lights or equivalent in 5 ft. gas burners.....	Ion Simons, City Electrician.
India	Calcutta.....	December 31.....	Lighting town by electricity, gas, oil, or other method; now lighted by 9,300 gas lamps of 24 c.p. and 2,400 c.p. oil lamps.....	Municipal Council

Miscellaneous

New York.....	New York.....	October 10, 3 P.M.	Constructing retaining wall on Spuyten Duyvil Parkway.....	Park Board.
New Jersey.....	Jersey City.....	October 10, 9 P.M.	Improving grounds around new high school building.....	John T. Rowland, Architect.
Alabama.....	Riverton.....	October 12, 11 A.M.	Excavation, riprap and paving at Colbert Shoals Canal.....	Maj. Wm. W. Harts, Eng'r Corps.
Pennsylvania.....	Williamsport.....	October 12, noon.....	Furnishing 1,364 porcelain enameled iron street signs with blue enameled backs, steel base, lettering white enamel, 3 ins. high.....	James F. Fisher, City Engineer.
Ohio.....	Cincinnati.....	October 14, noon.....	Constructing concrete wall, etc., Clifton School.....	E. H. Dornette, Architect.
Iowa.....	Des Moines.....	October 16, 11 A.M.	About 1,160 cu. yds. earth filling in city lots.....	W. W. Wise, Bd. Pub. Works.
New York.....	Brooklyn.....	October 17, 3 P.M.	Constructing rustic masonry boundary wall around Sunset Park.....	Sam'l Parsons, Pres. Park Bd.
Ontario.....	Lion's Head.....	October 18.....	Constructing extension to wharf.....	J. G. Sing, Toronto, Res. Eng'r.
Dist. of Col'bia.	Washington.....	October 19.....	Furnishing 12,000 trunk lockers.....	Maj. M. Gray Zalanski, Q. M.
Montana.....	Helena.....	October 21, noon.....	Furnishing 1,000 ft. 2½-inch fire hose.....	Martin Doty, City Clerk.
Illinois.....	Chicago.....	October 21, 2 P.M.	Furnishing 12,000 barrels Portland cement f. o. b. cars.....	U. S. Reclamation Service.
Louisiana.....	New Orleans.....	October 22, noon.....	Constructing Canebrake Canal, 8,500 ft. long; 250,000 cu. yds. excavation.....	Jas. S. Brady, Pres. Ev.
New York.....	New York.....	October 24, 3 P.M.	Installing flash-light signal system, elevators, Custom House.....	James Knox Taylor, Wash., D. C.
Ohio.....	Cincinnati.....	October 29, noon.....	Constructing narrow-gage coal and ash handling trucks, also for furnishing and delivering material, and for laying at the river and main water pumping stations.....	E. G. Prior, Clerk Com'r W. W.
Dist. of Col'bia.	Washington.....	November 14.....	Furn. firemen's helmets, fire alarm system, hose, nozzles, fire harness, attachments, etc., Isthmian Canal Com.....	E. F. Hoiges, Gen. Pur. Agent.

STREET IMPROVEMENTS

Greenville, Ala.—The citizens have voted \$12,000 5 per cent. 30-year street improvement bonds.—Address City Clerk.

La Fayette, Ala.—The citizens of the County have voted against issue of \$120,000 road bonds.

San Francisco, Cal.—The Supervisors' Finance Committee has recommended expending \$45,000 for repaving Harrison street, between Fourth and Sixth streets; \$65,000 for repaving Fourth, between Howard and Freelon streets; \$25,000 for Howard, from East to Twenty-sixth streets; \$5,000 for San Bruno avenue; \$2,000 for Railroad avenue.—Thomas P. Woodward, City Engineer.

Trinidad, Col.—The Board of Public Works is preparing to pave several streets this year.

Albany, Ga.—The Board of Public Works is preparing to pave certain portions of Broad street.

Nampa, Ida.—Bonds, \$114,000, have been voted for paving purposes.—Address City Clerk.

Joliet, Ill.—Assistant Attorney Burke has submitted ordinances for 6-foot concrete sidewalk, both sides Ruby street, Broadway to the river; estimated cost, \$1,646.92; and 5-foot concrete walk, west side of Broadway, Ruby to Moran; estimated cost, \$1,645.12.

Indianapolis, Ind.—The Board of Public Works has rejected all bids for paving N. Meridian street with wooden block resurfacing; bids will not be readvertised until winter, and will be opened in time to begin the work early in the spring.

New Albany, Ind.—The Board of Public Works has adopted plans and specifications, prepared by City Engineer Mann, for the improvement with vitrified block of West Main street, from First to Tenth streets; the street will be 52 feet wide from First to Eighth street.

Peru, Ind.—Bids will be received, November 4, for grading and draining, and paving about 23 miles of gravel roads in Richmond township, Miami county.—Chas. F. Griswold, County Auditor.

Winchester, Ind.—Council will pass the necessary legislation this fall for paving about fifteen more blocks on Winchester avenue; the paving on East Washington street is also to be extended; a large amount of the work already under way this season is to be completed in the spring.

New Albany, Ky.—It is estimated that the cost to improve East Tenth street will be \$10,128, or \$4.50 a lineal foot, between Spring and Oak streets, and \$7.73 a lineal foot between Oak street and Culbertson avenue. The cost of Eleventh street from Spring to Culbertson avenue is \$10,547, being \$4.75 a foot between Spring and Oak streets, and \$8.23 a lineal foot from Oak street to Culbertson avenue.—Samuel T. Mann, City Engineer.

Worcester, Mass.—Street Commissioner George C. Morse has been authorized to have Canterbury street paved with Hassam brick, at a cost of \$231.

Iron Mountain, Mich.—A highway connecting the village of Crystal Falls and Iron river is to be built by Iron county a distance of fifteen miles; crushed trap rock will be used as the macadamizing material.

Saginaw, Mich.—The Board of Estimates has approved issue of \$80,000 bonds for paving purposes.—Address City Clerk.

St. Louis, Mo.—The Board of Public Improvements has presented ordinances to the Assembly to pave forty streets and avenues, 9.29 miles, with vitrified brick; estimated cost, \$511,859; six streets, 2.35 miles, with bitulithic macadam; estimated cost, \$128,837; twelve streets, 2.4 miles, with asphalt, estimated cost, \$149,976; one street, .24 mile, with wood block; estimated cost, \$16,972; three streets, .85 mile, with granite; estimated cost, \$67,270; totals, 15.13 miles, estimated cost, \$874,914.—A. J. O'Reilly, President, Board of Public Improvements.

Residents of Calvary avenue have petitioned the Municipal Assembly and Board of Public Improvements for the paving of that highway from Broadway to Florissant avenue.—A. J. O'Reilly, President, Board of Public Improvements.

Hoboken, N. J.—A petition has been presented to Council asking that a noiseless pavement of wood block or asphalt be laid around the City Hall.—T. F. Smith, City Engineer.

Jersey City, N. J.—Specifications have been adopted for the improvement of Kearny avenue from West Side avenue to its easterly terminus.—Chas. Van Keurin, City Engineer.

Passaic, N. J.—Ordinances have been passed to grade, gutter, curb, flag, and macadamize President street, and to open and extend Grove street.—Auton Peterson, City Engineer.

Buffalo, N. Y.—Council has decided to pave certain portions of Elmwood avenue.

Fargo, N. D.—The sidewalks on Broadway on both sides of the street from the N. P. tracks to Front street have been ordered relaid and widened to the curbing. New cement or tile sidewalk has been ordered on the south side of Front street from First street south to the south bridge, a distance of 240 feet.

Akron, O.—Council has appropriated \$19,000 for land between High and Main streets, for the opening of the new street. City Engineer Payne estimates the cost of repaving Mill street with Medina paving blocks at \$12,057.76; this improvement will doubtless be authorized.

Bellefontaine, O.—Council will be asked to pass the preliminary legislation for paving South Main street early in the spring.

Bryan, O.—The village of Archbold has been bonded for \$5,000 for paving Depot street.

Cambridge, O.—North Eighth street is to be graded and paved, at a cost of about \$8,000.

Cleveland, O.—Resolutions and ordinances for paving improvements which it is hoped to undertake this fall are reported from Ohio towns as follows: Kent, paving Franklin avenue and setting the curbs, vitrified block to be used; East Liverpool, Pennsylvania avenue with asphalt block; Middletown, West alley with vitrified brick; Delaware, half a dozen specified streets by grading, curbing and macadamizing; F. D. King is Clerk; Zanesville, Ridge avenue and Culbertson avenue by paving with vitrified paving brick and curbing said street with concrete curbs.

Dayton, O.—The plant of the Hathering and Burner Asphalt Company is now in operation here; Mr. Geo. Catone, the company's representative, states that a large amount of street repairing work will be done here this fall.

East Liverpool, O.—Council has decided that the paving of Lisbon road will not be undertaken until next spring.

Findlay, O.—The City Engineer estimates the cost of paving the River road at \$5,000; this improvement will doubtless be authorized.

Greenwich, O.—Bids will be received, October 14, for the purchase of \$47,000, also \$8,000 1 to 10-year 5 per cent. paving bonds.—J. G. White, City Clerk.

Ironton, O.—Council has ordered cement sidewalks and gutters constructed on Main, Walnut and Elm streets.

Kent, O.—Bids will be opened, October 21, for \$15,000 1 to 10-year 5 per cent. street improvement bonds.—T. A. McMahon, Village Clerk.

Marysville, O.—There is a movement on behalf of the residents of Walnut street to have that street paved early in the spring; a number of other streets of this village are to be paved the coming season.

Massillon, O.—Bids will be opened, October 31, for \$6,000 street improvement bonds.—J. H. Douglass, Secretary, Sinking Fund Trustees.

Mt. Washington, O.—Bids will be received, October 22, for the purchase of \$7,800 sidewalk bonds, payable in 1 to 10 years.—E. H. Stevens, City Clerk.

St. Bernard, O.—Bids will be received, October 22, for the purchase of \$5,500 30-year 4 per cent. sidewalk bonds.—George Schroeder, Clerk.

Shiloh, O.—Bids will be opened, October 25, for \$5,400 bonds for paving Main street.—P. Y. Barnes, Village Clerk.

Sidney, O.—Council has passed preliminary legislation calling for the construction of sidewalks, curbs and gutters on Foraker, Oak, Mal and St. Mary avenues, and Michigan street.

Urbana, O.—Council is about to make extensive improvements in the streets of the southeastern portion of town; the first thoroughfare will be Kenton street, plans for which are already prepared by the Engineer; Henry, Windsor and one or two other streets will also be paved; concrete walks, curbs and gutters are provided in half a dozen streets; considerable of this work will be done this fall.

Youngstown, O.—Bids will be opened, October 28, for \$2,600 West Federal street widening bonds; \$2,530 Iowa street paving bonds; \$1,485 Darrow street grading bonds; \$4,635 sidewalk bonds; 5 per cent. interest, payable semi-annually.—William I. Davis, City Auditor.

Resolutions have been passed to construct sidewalks six feet wide in Bissell avenue. It has been decided to put in crosswalks at the intersections of Hancock, Second and Main streets; two on Main street at St. Clair street, and one on Kline crossing, North avenue; two on Liberty street crossing Stewart avenue; one at south side of Main street at Market street; two at St. Clair crossing Liberty street.—F. M. Lillie, City Engineer.

Alba, Okla.—An election will be held, October 17, to vote on issue of \$40,000 street improvement bonds.—J. A. Stone, Mayor.

Pittsburg, Pa.—Wm. Brand, President of the Common Council, is at the head of a movement for the paving of a number of streets.

Reading, Pa.—The Board of Public Works has been directed to advertise for bids for paving with hill stone, Buttonwood street

from Linden to Fourteenth streets; and to repair the intersection of Eleventh and Elm streets.

The Clerk has been instructed to prepare a petition to Councils for the widening of Linden street from Princetown road to Marion street and the vacating of Princetown road from Linden street to Marion; resolutions have been passed to grade, repair and construct brick gutters and reset curbs on several streets.—Elmer H. Beard, City Engineer.

Scranton, Pa.—Resolutions have been passed asking for plans, specifications and estimate of cost of paving Wayne avenue, Spruce street and Mifflin avenue.—Charles R. Acker, Director, Department of Public Works.

Stonycreek Township, Pa.—Bonds, \$6,600, will be issued for improving the roads of the township.

Wilkes-Barre, Pa.—Fairburn lane, between Washington and State streets, is to be repaved with vitrified brick, and Logan street will be graded.

Knoxville, Tenn.—An ordinance is before Council approving issue of \$60,000 bonds to pay for the city's share of paving.—Address City Clerk.

Beaumont, Tex.—Bids will be received, October 21, for the purchase of \$300,000 Jefferson County road bonds.—Address County Auditor.

Comanche, Tex.—The County will vote on the question of issuing \$170,000 road bonds.—Address County Auditor.

Marshall, Tex.—The Attorney General has approved issue of \$90,000 bonds for constructing sidewalks.—Address City Clerk.

Salt Lake City, Utah.—The Board of Public Works will advertise for bids for paving extension No. 32, which includes the paving with macadam of five streets.—L. C. Kelsey, City Engineer.

Tacoma, Wash.—The commissioner has been authorized to make survey, diagram and estimates for improving North Twenty-third street and Fife street, East P street and other streets in district No. 348, and South Tenth and other streets in district No. 399 will be improved.

Charleston, W. Va.—Bids will be received, October 17, for the purchase of \$170,000 4½ per cent. paving bonds.—H. A. Holley, Mayor.

SEWERAGE

Champaign, Ill.—The Board of Public Works is preparing to establish a complete sewer system.

Bloomington, Ill.—The Board of Local Improvements recommends improving the sewer system.

Elgin, Ill.—An ordinance has been passed giving the residents of Oregon avenue, between the river and 150 feet west of Fifth street, the privilege of building and maintaining a sewer, to be built to conform to the plans drawn by the engineers, and to be used as part of the general system when it is installed.—Carl E. Plum, City Engineer.

Vincennes, Ind.—Plans for a complete system of sewerage for the city have been submitted to the Board of Works by Jos. V. Hershey, City Engineer; estimates will be asked for from contractors. The Indiana Sewer and Drainage Company, which recently submitted a plan for a general sewerage system throughout the city, has been invited to submit an estimate of the cost of building their plan of sewerage, including the excavation, pipe and pumping stations in detail.—Jos. V. Hershey, City Engineer.

Pauls Valley, I. T.—Bonds, \$45,000, have been authorized for sewer and water purposes.—Address City Clerk.

Davenport, Ia.—Surveys are to be made for the construction of the proposed East Thirteenth district sewer.—Thomas McClay, City Engineer.

New Orleans, La.—Bids for laying 110 miles 8 to 27-inch sewer pipe to a depth of 5 to 17 feet, including 1,230 manholes and 443 flush tanks, in four contracts, which were opened September 11, have been rejected, being 20 to 40 per cent. too high.—F. S. Shields, Secretary, Sewer and Water Board.

New Bedford, Mass.—The Committee on Roads, Bridges and Sewers has recommended to Council the construction of sewer in Roosevelt street, length 505 feet; estimated cost, \$1,100; sewer in Clinton street length 103 feet, estimated cost \$200; sewer in Tallman street, length 611 feet, estimated cost \$1,400; and that the sewer in Nash road be made deep enough to drain from houses west of Bowditch street, and appropriate \$3,000 for the extra work; also that an appropriation of \$50,300 be made for the construction of the sewers in Wood and adjacent streets, 36, 30, 18, 15, 12 and 10-inch pipe to be used.—Charles S. Ashley, Mayor; William F. Williams, City Engineer.

Worcester, Mass.—The construction of a common sewer has been ordered in Putnam lane, to cost \$2,930.—Frederick A. McClure, City Engineer.

Tecumseh, Mich.—The citizens have voted \$29,000 bonds for sewers.—Address City Clerk.

St. Paul, Minn.—The Board of Public Works has accepted plans and specifications for constructing main sewers in the Ninth Ward.

Two Harbors, Minn.—An ordinance has been passed authorizing an issue of \$400,000 bonds for drainage purposes.—Address City Clerk.

Joplin, Mo.—The proposed three new sewer mains will require about two miles of pipe laying.—N. B. Spillman, City Engineer.

St. Joseph, Mo.—Council has under consideration an ordinance for issue of \$325,000 bonds for sewer extensions and \$75,000 bonds for Fire Department.

Passaic, N. J.—Ordinances have been passed to lay a sanitary sewer in Richard street and a storm sewer in Howe avenue.—Anton Peterson, City Engineer.

Perth Amboy, N. J.—Plans have been prepared for a new sewerage system in the western section of the city.—Forrest L. Smith, City Engineer.

Grand Forks, N. D.—A resolution has been passed establishing Sewer District No. 2; the plan is to construct a main sewer on Alpha avenue, and laterals on various streets; estimated cost, \$8,000.

Akron, O.—Sewers are to be constructed in Edgewood avenue and Beardsley and Mangold streets.

Alliance, O.—City Engineer Gyger has completed plans for the sewer outlet extension from the sewage disposal plant to a point 2,600 feet below the works; the sewer will be 24 inches in diameter, and the work will be advertised as soon as the Service Board accepts the plans.

Ashtabula, O.—Council has taken preliminary steps for the construction of trunk sewers in the new sewer district, known as No. 3; sidewalks have also been ordered built on a number of streets.

Cleveland, O.—Plans are on file at the office of the Wm. H. Evers Engineering Company, 237 Arcade, for the sewer in Detroit street, in the village of Lakewood; a certified check for \$200 must accompany each bid, and bids to be addressed to B. M. Cook, Village Clerk, Town Hall, Lakewood.

Defiance, O.—The ordinance for the construction of the North Clinton street sewer has passed Council; a \$3,000 outlay will be necessary; bids will be invited at once.

Ironton, O.—The construction of the Ellison avenue sewer will undoubtedly be authorized; P. C. Booth has been elected Chairman of the Committee to urge its construction.

Lancaster, O.—A sewer is to be constructed in District No. 3; plans for same are to be immediately prepared and bids invited.

Massillon, O.—Bids will be opened, October 31, for \$11,500 storm water sewer bonds.—J. H. Douglass, Secretary, Sinking Fund Trustees.

Norwalk, O.—Engineer E. J. Bradberry, of Columbus, has recommended that changes be made in the specifications for the sewerage system for the town, on the ground that prices are so high that a bond issue in excess of the one already provided will be necessary to complete the work.

Orville, O.—City Clerk Jackson states that Engineer L. E. Chapin, of Canton, has made a partial change in sewer plans for this village; the amendments will be taken up at the coming meeting of the Council.

Put-in-Bay, O.—Carl Oelschlager, Village Clerk, states that plans are on file for the sewerage of a large section of the town; bids for this work will probably be received this year.

Springfield, O.—Ordinances have been passed to construct sanitary sewers in Southern avenue, in Maple street and in Euclid avenue; City Engineer W. H. Sieverling estimates that it will cost \$6,914 for the North Limestone street sewer, and the West Main street sewer will cost \$23,227.50.

Youngstown, O.—Bids will be opened, October 28, for \$1,470 Summit avenue sewer bonds.—Wm. J. Davies, City Auditor.

Stillwater, Okla.—D. B. Merry, City Engineer, has prepared estimate for sewer, to cost \$60,000.

Chambersburg, Pa.—An election will be held to vote on issue of \$80,000 bonds for installing a sewerage system.—J. B. Ludwig, President of the Board.

Reading, Pa.—Favorable reports have been made on the ordinances authorizing the extension of the intercepting storm water sewer to Twelfth and Walnut streets, and on Nevversink and Culvert streets.

Madison, Wis.—An order has been adopted for a sewer in the Greenbush district.

WATER SUPPLY

Birmingham, Ala.—Council has been petitioned to call an election to vote on issue of \$3,000,000 bonds for municipal water plant.—Address City Clerk.

Skagway, Alaska.—The sum of \$60,000 has been appropriated for installing water system at Fort W. H. Seward, 12 miles from here; the water will be brought across the Tide lands, a distance of 10 miles.

Redwood City, Cal.—It has been resolved that bonds in the sum of \$30,000 be issued for the erection of water tanks and a new town hall.

Wilmington, Del.—The Board of Water Commissioners decided not to award the contracts for building the final filter beds and filtered water reservoir in connection with the new water system; all bids were returned, and action regarding the awarding of contracts postponed indefinitely.

Washington, D. C.—The Commissioners will repeat their efforts of former years to secure an appropriation to begin the construction of another conduit in connection with the city's water supply; \$10,000 will be asked for making a survey.—Jay J. Morrow, Engineer, Commission; W. A. McFarland, Superintendent of Water Department.

Lewiston, Ida.—An election will be held to decide the question of issuing bonds for the improvement of the water system.—Address City Clerk.

Joliet, Ill.—Assistant Attorney Burke has submitted ordinances for Meeker avenue and Collins street water main, estimated cost \$4,281.60; Franklin and Ohio streets water main, estimated cost \$3,891.36; Gardner street water main system, estimated cost, \$7,847.18; Liberty street water main, estimated cost \$3,643.75.

Mt. Carroll, Ill.—Bids will be received, October 15, for furnishing a water pump of a capacity of 1,500,000 gallons every 24 hours.—Cal N. Feezer, Clerk.

Council Bluffs, Ia.—No bids were received for the construction of an 8-inch water main extension on Twenty-eighth street, and the City Clerk has been instructed to readvertise.—S. L. Elmyre, City Engineer.

Lawrenceburg, Ky.—Council has appropriated \$10,000 for the construction of a water works plant.—S. Marks, City Clerk.

Amite, La.—Council is considering the matter of establishing water plant.

East Hampton, Mass.—The Insurance Board recommends that the water works system be rebuilt.

Virginia, Minn.—The Everlett Water Company proposes to furnish water supply for the town of Virginia.

Brook Haven, Miss.—Bids will be received, October 15, for the purchase of \$15,000 6 per cent. 5 to 20-year water works extension bonds.—E. H. Hamilton, City Clerk.

Jersey City, N. J.—Water Commissioner Louis L. Finke has installed water meters in public schools and other public buildings, with a view to ascertaining the amount of water the city is furnishing free, and to stop the leakage and waste in municipal buildings.

Buffalo, N. Y.—The Delaware, Lackawanna and Western Railway Company will build a reservoir with a capacity of 25,900,000 gallons.

New York, N. Y.—In order that contractors may look over the ground before topographical features are obscured by snow, the Board of Water Supply, 299 Broadway, has given public notice that a number of contracts on the reservoir and aqueduct for the Catskill water supply will be advertised during the autumn and winter. The work will require about twenty miles of aqueduct and tunneling, and the construction of the new dam at Walhalla, and include main dam, Kensico reservoir; headworks of Catskill aqueduct, portions of the Esopus division of the Catskill aqueduct; portion of Walkkill division of the Catskill aqueduct; Rondout siphon and Walkkill siphon. Further information can be obtained from A. D. Flinn, Department Engineer in charge of headquarters, Room 1515, 299 Broadway, New York City.

Grand Forks, N. D.—The question of issue of \$50,000 bonds for constructing water works will be submitted to the voters at the coming general election.

Akron, O.—The resolution calling for the submission to a vote of the people the question of issuing bonds for purchase of municipal water works plant has been tabled for six months by Council.—Roy F. Hamlin, City Clerk.

Girard, O.—F. M. Osborn, of Cleveland, has made an application for a franchise for a water works plant; the Mayor has appointed Councilmen Zeller, Krehl and Fuller to confer with Mr. Osborn in regard to the matter.—Wm. Wilson, Village Engineer.

Defiance, O.—Council of the Village of Swanton has decided to purchase a site for the new water works; Dr. A. B. Lathrop, one of the members of the Board of Public

Works, states that cost will be \$20,000 for the plant.

Delta, O.—Messrs. Miles, Darnell & Kimball have been appointed a special committee to secure a water works plant for this village; the purchase of a fire engine costing \$1,300 will also be authorized.

Ironton, O.—The plans of Ruben Lambert for water connections have been accepted by Council, and bids for its construction are to be immediately advertised; the cement foundation will cost about \$1,000; this contract will be first awarded.

Marietta, O.—The filter plant of the Sterling Oil Refinery at Sterling has been destroyed by fire.

Newark, O.—W. C. Christian has estimated the cost of erecting a new municipal water works plant throughout at \$237,000.

New Lexington, O.—Council has recommended a \$35,000 bond issue for constructing a water works.

Oxford, O.—Bids will be opened, October 26, for \$2,000 water extension bonds.—D. P. Beaton, Village Clerk.

Tiffin, O.—The enlargement of Carey's municipal water works plant has been recommended.

Prague, Okla.—An election will be held, October 21, to vote on issue of \$30,000 bonds for establishing water system.

Reading, Pa.—The Clerk has been instructed to prepare for Councils, resolutions authorizing the placing of a water main on Douglass avenue.—Elmer H. Beard, City Engineer.

Scranton, Pa.—As the result of the increase in the water rates by the Scranton Gas and Water Company, two resolutions have been unanimously adopted by Common Council authorizing preliminary steps for the installation of a city water plant.—F. G. Kruegerman, Chairman, Light and Water Committee.

Seneca, S. C.—Bonds have been voted for establishing a water plant.—Address City Clerk.

Nashville, Tenn.—The Water Board recommends an issue of \$200,000 bonds for the extension of water mains.—T. O. Morris, Mayor.

Dallas, Tex.—The proposition of H. F. Speer and G. P. Phillips to give the necessary pipe for laying a 2-inch galvanized main for about 1,200 feet from the city's 4-inch water main on Canty street crossing of the Northern Texas Traction Company has been accepted; the city is to lay the pipe and acquire the title to it.

Mineral Wells, Tex.—Bonds, \$10,000, have been voted for water works purposes.—Address City Clerk.

Temple, Tex.—An election will be held October 22 to decide the question of issuing \$150,000 bonds for the purchase of water works plant.—Address City Clerk.

Salt Lake City, Utah.—Water mains are to be extended through Federal Heights.—L. C. Kelsey, City Engineer.

Alexandria, Va.—The Board of Supervisors of Alexandria County has granted the Alexandria Water Company permission to lay a 4-inch main for the purpose of supplying the residents of Del Ray with water, providing the company will tap a 12-inch main one year from October 1 next; it was also stipulated that the company must supply fire plugs through the streets of that suburb where its mains pass in the event they are deemed necessary by the authorities; it is also stipulated that the concession granted this company shall not prevent the Supervisors from granting similar concessions to other companies that may desire to enter the field.

Tacoma, Wash.—The Commissioner has been instructed to make test of each well at South Tacoma and report same to Council.—Frank L. Davis, City Engineer.

Tenino, Wash.—Council has granted franchise to S. W. Fenton to establish a water system.

Brooklyn, Wis.—An election will be held to decide the question of issuing \$8,000 bonds for the construction of a municipal water plant.

Deforest, Wis.—The citizens have voted bonds for the construction of water system.

Manitowoc, Wis.—Citizens have voted against the purchase by the city of the water works plant for \$230,000.—A. W. L. Reichert, City Clerk; C. W. Gray, Superintendent.

Racine, Wis.—The question of issuing \$410,000 bonds for the purchase of a water plant has been voted against.—Wm. H. Armstrong, City Clerk.

Sheboygan, Wis.—The matter of issuing \$400,000 bonds for purchase of water works plant has been defeated at special election.—John M. Steimle, City Clerk.

Waukesha, Wis.—The Board of Public Works recommends the replacing of water mains with new pipe; estimated cost, \$35,000.

West Bend, Wis.—The city has voted \$25,000 bonds for establishing a municipal water plant.

LIGHTING AND ELECTRICITY

Alameda, Cal.—The matter of improving the electric light plant is under consideration.

Napa, Cal.—City Clerk Henry Thomson has been advised to notify the Napa Gas and Electric Company that unless the city is given a better light service the municipality will cancel its contract with the company.

San Jose, Cal.—The Westinghouse Electric and Manufacturing Company, of Pittsburgh, Pa., has sent a representative from its San Francisco office to confer with Mayor Mathews regarding the feasibility and cost of a municipal electric plant. Although there are only 300 electric street lights in the city, estimates are being made on the basis of the use of twice that number; the plan contemplates the use of boilers burning oil and steam turbines.

Washington, D. C.—According to a report from a Consul in a South American country, a municipality there desires to sell its electric light plant to private parties; the plant is not profitable, owing to poor management.—Address 1496, Bureau of Manufactures.

Blackshear, Ga.—The city contemplates building an electric light plant.

Canton, Ga.—The citizens have voted bonds for constructing light and water plant.—Address City Clerk.

Peoria, Ill.—In return for permission to extend their gas pipes and electric wires to the streets in Peoria township outside of the city limits, the Highway Commissioners have submitted a counter proposition asking free lights for the upper free bridge.

Peotone, Ill.—The city is not lighted in a satisfactory way; the light is furnished by Yong & Feilde; the company furnishing light will not make necessary improvements, unless Council will grant a long time franchise.

Princeton, Ind.—The Consumers' Gas Company is planning to spend \$60,000 in the construction of its new plant in the B. M. A. Addition in Princeton; plans for the tanks and buildings are in the hands of architects, and as soon as they have been accepted by the company excavation will begin.

Barbourville, Ky.—Local and Pennsylvania capitalists have organized the Cumberland Natural Gas Company, with a capital stock of \$100,000; the new concern takes over the old Cumberland Gas Company, which owns a natural gas system, and will extend lines to the more important towns of southeastern Kentucky; arrangements have been made to pipe gas from this city to Corbin, a distance of sixteen miles.

Bay City, Mich.—Council proposes to remove the East Side electric station to the West Side, and to purchase additional machinery; bids will be asked for the installation of the machinery.

Holly, Mich.—The Cable Organ Company is now erecting a plant and proposes to use electric power and light.

Lansing, Mich.—Superintendent Dodge, of the Electric Light and Water Commission, has been directed to purchase 100 water meters.

Manchester, Mich.—The matter of issuing bonds for municipal lighting plant is under consideration.—Address City Clerk.

Caledonia, Minn.—Bonds have been voted for extending the light and water plant.—Address City Clerk.

Collins, Miss.—A proposition to issue \$5,000 light and water bonds was defeated.—Address City Clerk.

Laurel, Miss.—The Gulf States Investment Company has been granted a 25-year franchise to build and operate an electric light and power plant.

Springfield, Mo.—W. C. Farmer, the Springfield representative of the Pabst Brewing Company, of Milwaukee, plans to move his electric light plant to this place, from Osceola, to be operated in connection with the Pabst brewing establishment and cold storage plant soon to be erected.

Exeter, Neb.—Franchise has been granted to C. E. Smith to establish a light plant.

Williamstown, N. J.—A gas company has been organized, with the following directors: H. K. Bugbee, William P. Buck, Eli R. Marsh, Walter Tice, Dunlevy Loughlin, H. S. Ireland, Peter Peterson, W. C. McIlvaine, Harry Stille, Dr. James McClure, J. T. Wood and Albert Eldridge; gas will be secured from the Pitman, Glassboro & Clayton Company.

Arlington, O.—The lowest bid for the construction of the electric lighting plant is \$13,324; this is in excess of the fund for that purpose, and a new estimate will be prepared.

Dayton, O.—An ordinance has passed Council providing for the municipal ownership of an electric lighting plant; this will involve a bond issue of \$500,000 for its erection and maintenance.

Hudson, O.—James W. Ellsworth, of Cleveland, has given a municipal lighting plant,

water works and sewerage system, to cost \$70,000, to the village of Hudson; D. M. Hosford, 614 Caxton Building, Cleveland, O., has prepared the plans; the new plants will be adequate to a population of 4,000, and capable of further expansion.

Rawson, O.—The citizens are considering the matter of establishing an electric light plant.

Springfield, O.—Bids for lighting the streets will be asked for now, although the present contract with the People's Light, Heat and Power Company does not expire for two years.—A. J. Moyer, President, Board of Public Service.

Altoona, Pa.—Twelve electric light ordinances have been passed upon favorably by the Police and Property Committee of Council.—G. W. Kuebler, President, Board of Public Works.

Brownsville, Tex.—Bids will be received, October 30, for the purchase of \$43,000 light and water bonds; interest 5 per cent., payable in 20 to 40 years, inclusive.—Frank W. Kibbe, City Clerk.

Salt Lake City, Utah.—Architect W. H. Lepper is working on plans for a great electrical plant for the Teluride Power Company, near Grace, Bear River County, which when fully developed will have a capacity of 40,000 horsepower; at present the design is for a plant of half that capacity, with two 10,000 horsepower generators; the power will be supplied by water from the Bear river.

Fredericksburg, Va.—Council has appropriated \$1,000 for adding to the municipal electric plant, incandescent system for lighting stores, dwellings, etc.

Boydton, Va.—R. W. Lassiter contemplates developing water power at Eagle Point fall, on the Roanoke river, and establishing an electric light plant.

Tacoma, Wash.—Council has appointed Councilmen Hawthorne and Stambaugh a committee to negotiate for the purchase of power rights of the Nisqually river, at the upper canyon, and it is quite probable that a power station will be constructed as a solution of the growing demand for electric current.

Elkins, W. Va.—N. I. Hall, Secretary of the Elks Power Company, states that his company is about to apply to the Mayor for a franchise to erect and maintain an electric lighting plant.

Princeton, W. Va.—The Princeton Power Company, recently incorporated with a capital stock of \$25,000, will establish an electric power plant.—E. S. J. Evans, General Manager.

FIRE EQUIPMENT

Port Jones, Cal.—A fire company has been organized.—A. E. Luce, Foreman.

Champaign, Ill.—Council proposes to establish a paid Fire Department.

Menominee, Mich.—Fire Chief L. C. Collins has been directed to purchase \$1,000 worth of hose.

East Burlington, N. J.—A Fire Department is to be established; Andrew H. McNeal has donated a lot to the city for the erection of a fire house, and the New Hope Company has given a hose carriage.

Passaic, N. J.—Bids are asked for addition to Howe Engine House, and to repair and paint truck.—Aaron Witte, architect.

Deerfield, N. Y.—A fire district, extending for one mile in all directions from the engine house, has been established, and five Fire Commissioners and a Fire Treasurer elected.

Kingston, N. Y.—A paid Fire Department is being established.

Fargo, N. D.—The Fire and Water Committee has been authorized to equip the Fire Department with ladders, cost not to exceed \$300.

Youngstown, O.—Bids will be opened, October 28, for \$2,000 fire alarm bonds.—Wm. I. Davies, City Auditor.

Wilkes-Barre, Pa.—P. H. McManus, Superintendent of the Fire and Police Alarms, has recommended placing all police and fire alarm wires under ground; also that rubber covered conductors with lead sheathing for cables, boxes be placed on iron poles instead of wooden poles and the reserving of one duct on all streets where conduits are laid for the use of the city.

Chattanooga, Tenn.—City Engineer R. H. Hooke has been instructed to advertise for bids for filling in of the basement of Engine Hall No. 3; estimated cost, \$750.

Fairview, Utah.—The towns of Fairview, Spring City, Moroni and Fountain Green are without fire protection; it is proposed to organize a Fire Department for the protection of these cities.

Seattle, Wash.—The City Electrician asks for \$74,000 for a fire alarm system.

Spokane, Wash.—The City Electrician estimates the cost of establishing a fire alarm system at \$75,000.

Cedarburg, Wis.—The proposition to issue \$10,000 fire protection bonds was defeated.

PUBLIC BUILDINGS

Lineville, Ala.—The citizens have voted to issue \$8,000 bonds for the construction of school house.—Address Clerk of the Board.

Osceola, Ark.—Bids will be received, October 15, for the purchase of \$25,000 6 per cent. 20-year school bonds.—L. A. Morris, Secretary.

San Francisco, Cal.—The Supervisor's Finance Committee has recommended the sum of \$15,000 for a new fireproof brick building to accommodate the Department of Electricity and the fire and police alarm systems.

The City Board of Supervisors has recommended an issue of \$2,000,000 bonds to rebuild wing of City Hall, and \$750,000 to rebuild Hall of Justice.

Vallejo, Cal.—An election will be held, October 24, to decide on the question of issuing \$73,000 school bonds.—Address City Clerk.

Armstrong, I. T.—Bonds have been voted for enlarging high school building.—Address City Clerk.

Portland, Me.—An engine house is to be built at Deering avenue and Revere street; estimated cost, \$10,000 to \$12,000; arrangements are being made to build an engine house in Woodford.—Melville N. Eldridge, Chief, Fire Department.

Collins, Miss.—At the October election the citizens will vote on the question of issuing \$20,000 bonds for the construction of Court House in Covington county.—Address County Auditor.

Booneville, Mo.—An election will be held, November 12, to vote on the question of issuing \$100,000 4 per cent. Cooper county court house bonds.—Address County Auditor.

Marysville, Mo.—Nodaway county has voted \$35,000 infirmary bonds.—Address County Clerk.

St. Joseph, Mo.—Council recommends the issue of \$75,000 Fire Department bonds.

Omaha, Neb.—November 2 an election will be held to vote on the question of issuing \$30,000 in bonds for the erection of a fire house at Twenty-fourth street.

Medina, N. Y.—The citizens will vote on the question of issuing \$6,000 bonds for constructing City Hall.—Address City Clerk.

Raleigh, N. C.—The proposition to issue bonds for Auditorium and Market House has been decided.

Cincinnati, O.—Harry Hake has been directed to prepare plans for the erection of a fire house at Borden and Elmore streets; estimated cost, \$20,000.

Easton, Pa.—An ordinance has been passed authorizing an issue of \$27,000 bonds for fire protection; the ordinance contemplates expending \$13,000 for the erection of two fire stations, on the south side; \$5,000 for a fire engine, for the Twelfth street station; \$4,000 for a combination chemical engine and hose carriage for the No. 2 and No. 3 engine houses, and \$5,000 for an extension to the Sixth street engine house.

Alba, Tex.—The Attorney General has approved issue of \$10,000 5 per cent. school bonds.

Cedar Hill, Tex.—The Attorney General has approved an issue of \$9,500 district school bonds.—Address Clerk of the Board.

Comanche, Tex.—The citizens have voted \$11,000 additional high school bonds, and \$6,000 water works bonds.—Address City Clerk.

Del Rio, Tex.—A new election will be held to establish the legality of the issue of \$30,000 school bonds.—Address City Clerk.

Fort Worth, Tex.—Resolution calling for plans and specifications for a city hall, not to exceed \$40,000 in cost, has been adopted.—John T. Montgomery, City Clerk.

Everett, Wash.—The Snohomish County Board will receive bids, October 15, for the purchase of \$200,000 6 per cent. 10-20-year school bonds.—W. R. Booth, County Treasurer.

Benwood, W. Va.—Council has decided to build a fire engine house.—James F. Kelly, Clerk.

STREET RAILWAYS

Birmingham, Ala.—Richard Tillis has agreed to build and equip an electric line from Dothan to Geneva via Slocumb, if the people will guarantee \$50,000.—J. C. Murray, City Clerk.

Alton, Ill.—The Alton, Granite City & St. Louis Traction Company will apply to Council for a franchise to operate an electric express through the streets of Alton; the company proposes to run an express line from Alton to St. Louis.

Meridian, Miss.—The Meridian Street Railway Company, W. H. Ambrecht, Vice-President and General Manager; Mobile & Ohio Railroad, R. V. Taylor, Mobile, Ala., General Manager, and Queen & Crescent Route, D. D. Curran, New Orleans, La., Vice-President and General Manager, will build overhead bridge across railroad tracks at Meridian, expending about \$50,000.

St. Joseph, Mo.—The Missouri Traction Company is being organized for the purpose of building an electric line between St. Joseph, Excelsior Springs and Mirabile, Mo.; articles of incorporation are being prepared at the office of the Business Men's League.

New York, N. Y.—It is proposed by New York men to build an electric traction system in a section of Staten Island now served by stages; it will connect Richmond, Rossville, Kreischerville and Tottenville, and be known as the Richmond and Tottenville Railway.

Nyack, N. Y.—The Board of Education has requested the trustees to refuse to grant any franchise which has for its conditions the construction, maintenance and operation of a trolley road in Hudson avenue in the rear of the Union School Free Building.

Springfield, O.—An ordinance has been passed renewing to the Indiana, Columbus and Eastern Traction Company the right to construct, operate and maintain an electric street railroad upon certain streets.

Finleyville, Pa.—Application will be made for a charter of an intended corporation to be called the Finleyville Southern Railway Company; the corporation proposes to build a trolley line from Finleyville to Bentleyville.—M. J. Hayden, T. M. Hayden and others, Incorporators.

Wellsville, Pa.—The Distillery & Wellsville Railway Company has been incorporated with a capital stock of \$75,000 for the purpose of building an electric road.—Dr. Augusta C. Hetrick, President.

Lewisburg, Tenn.—Marshall county has voted \$65,000 5 per cent. 20-year railroad aid bonds.—Address County Clerk.

Greenville, Tex.—A movement is on foot by Greenville, Woulfe City and Bonham parties to build an interurban trolley line from Greenville by way of Woulfe City to Bonham, and provide for a street railway system also in these cities.

BRIDGES

Hot Springs, Ark.—The Business Men's League has decided to rebuild the bridge on the Gardner Ferry road and has voted \$1,000 to meet the expense of repairs; the bridge originally cost \$40,000, but has been out of commission for some time, owing to its being condemned as unsafe.

Caldwell, Ida.—Bids will be received, October 11, for the purchase of \$44,000 6 per cent. 10-20-year optional bridge bonds.—O. V. Vadley, County Clerk.

Galena, Ill.—The J. Davies County Bridge Committee, together with the Commissioners of Highways of the town of Derinda, will repair iron bridge near Joseph Wands; also bridge near Robert Williams.—John McIntyre, Highway Commissioner.

Frankfort, Ind.—The Clinton County Commissioner will receive bids for the furnishing of all material and labor for repairs on the two bridges over Prairie branch, one on Walnut street and one on Clinton street.—C. F. Cromwell, Auditor, Clinton County.

Goshen, Ind.—The County Council has allowed \$400 for a bridge in Union township; the matter of appropriating \$4,000 for a bridge at Main street was deferred until January.—D. J. Troyer.

Council Bluffs, Ia.—Stark & Co., of Des Moines, have been awarded contract for the erection of a concrete bridge over Indian creek on Frank street; cost, about \$6,000.—S. L. Etnyre, City Engineer.

Davenport, Ia.—C. V. Swanson, of the Road Bridge Committee, of Rock Island, Ill., has been conferring with President Porter and Manager Lardner regarding the bridge to be built over Rock river; the Tri-City Railway Company officials have stated that the building of an interurban to Geneseo is one of the plans of the company.

Menominee, Mich.—Council has appropriated \$9,000 to defray one-half the cost of constructing a new paper mill bridge to replace the present one which is now dangerous and which is condemned as being unsafe; the Marinette City Council will take the matter up within a short time.

Bemidji, Minn.—Six bridges over the Mississippi river at Bemidji have been declared to be illegal obstructions to navigation by the United States Government and orders have come from the War Department that either lift or draw plaspans must be placed in them or the structures must be torn down by May 1, 1907; the bridges include two belonging to the Minnesota & International Railroad, one to the Great Northern, one of the Red Lake and Manitoba and two belonging to the city of Bemidji; as none of these bridges have draws, it is impossible for steamers to proceed further up stream than Bemidji at present.

St. Paul, Minn.—Council proposes to build a new steel bridge to Harriett Island; the present bridge has been declared unfit.

Carlsbad, N. M.—The Eddy County Board will receive bids, October 27, for the purchase of \$22,000 6 per cent. bridge bonds.—W. H. Merchant, Treasurer.

Mooreville, N. C.—Mr. James Brown and others are going to build bridge over the Catawba river connecting Iredell and Catawba counties; the money is already subscribed and the contract let; the new bridge, which is to cost about \$15,000, will be a toll bridge.

Cincinnati, O.—The County Commissioners have agreed to join with the Commissioners of Dearborn county, Ind., in the repair of the suspension bridge over the Big Miami river at Harrison, O.

Reading, Pa.—The Highway Commissioners are proposing to build bridge at Sixth street.

Nashville, Tenn.—The City Engineer's office is preparing plans for the Vine avenue viaduct across First creek; the Board of Public Works will soon advertise for bids for the construction of a reinforced concrete structure; the old wood and iron bridges will be removed.

Houston, Tex.—The City Commissioners are considering plans for bridge at Main street.

Relton, Tex.—The Bell County Commissioners are considering erection of steel wagon bridge costing \$25,000 over the Leon river, between Velton and Temple, Tex.

Richford, Vt.—It has been voted to build a new steel and cement bridge 66 feet wide over the flume near the river on Main street.

Raymond, Wash.—Specifications are being prepared for building a bridge across the Willapa river at a cost of \$40,000.

Spokane, Wash.—It has been decided by the city to offer 4½ per cent. on the \$400,000 bonds for bridge improvements instead of 4 per cent. as no bidders were presented on the 4 per cent. plan; Mayor Moore has called a special meeting to amend the ordinance.

Brodhead, Wis.—The voters of Decatur township have voted to levy a tax of \$1,000 for constructing a new steel wagon bridge across Jordan creek in place of the old Gombard bridge; the contract will be let to the lowest bidder.

Menominee, Wis.—The Dunn County Board will appropriate money to rebuild bridges washed out by the recent heavy rain.

Sheboygan, Wis.—The members of Council seem to be practically unanimous that a new bridge is needed in Pennsylvania avenue and that not later than next year one will be constructed; no formal action has been taken in the matter, but it is unmeasurably certain that there will be ere long.

MISCELLANEOUS

Tombstone Canyon, Ariz.—The residents of Tombstone Canyon have petitioned Council for better police protection, more lights, better roadways, proper protection from flood waters, and a final survey of the proposed street car line.

Alameda, Cal.—The proposition to issue \$300,000 bonds for public improvements will be submitted to the vote of the people.—Address City Clerk.

Oakland, Cal.—Council will be urged to prepare and submit a bond issue to the voters for municipal wharves in the East Oakland basin, in West Oakland, between the Southern Pacific and Western Pacific lands, and in North Oakland in the vicinity of the Key Route pier; the center of the system is the proposed five miles of wharves extending into the harbor from West Oakland; estimated cost approximately \$1,207,600.

Washington, D. C.—An American Consul in South America reports that a city of about 200,000 inhabitants is about to issue a call for bids, open for four months, for contracts to supply drainage and electric power; he states that contracts will probably be tied together, and that interested houses should send an expert representative at once.—Address No. 1463, Bureau of Manufactures.

Albany, Ga.—Bonds, \$75,000, have been voted for the erection of a new City Hall, the paving of one block on Broad street, the improvement of the surface drainage system and the opening of a new street in the western portion of the city.—C. W. Rawson, Mayor; Y. C. Rust, City Clerk.

Clinton, Ia.—All of the telephone wires are to be placed underground in the near future by order of Council.

Des Moines, Ia.—Council proposes to issue \$10,000 bonds to repair damages made by the flood.—Address City Clerk.

Baltimore, Md.—Two ordinances, one providing for a \$1,000,000 park improvement loan and the other for a \$5,000,000 street paving loan, have been passed by the First Branch of the City Council.—J. Barry Mahool, Mayor.

Boston, Mass.—Only about \$389,000 worth of the \$1,000,000 issue of city bonds that were offered over the counter at par, nearly a month ago, has been disposed of, and the demand for them has practically ceased; of the entire bond issue of the year of \$3,924,000 there remains undisposed of at present \$2,685,000 worth; when bids were asked for

first but \$100,000 worth was sold, an offer of 101 for this amount being accepted; later \$750,000 worth was sold at a private sale at par.

Worcester, Mass.—The Park Commissioners have been authorized to buy the Scott property at Main and Southbridge streets for park purposes.—Rufus B. Fowler, Secretary, Commission.

Bay City, Mich.—The \$150,000 issue of local improvement bonds, which ordinarily would have been disposed of last June, will probably be readvertised; the bonds have been advertised three times without any bids fulfilling the conditions imposed, the principal one being the payment of only 4½ per cent. interest.

Detroit, Mich.—The Board of Health in a letter to Council recommends the establishment of a municipal plant for the incineration of rubbish.—George T. Gaston, City Clerk.

Minneapolis, Minn.—Health Commissioner P. M. Hall estimates it will cost \$55,000 to handle the city's garbage next year.—L. A. Lydiard, City Clerk.

Passaic, N. J.—Bids are asked for the construction and improvement of vaults in the City Hall.—John F. Kelly, architect.

Albany, N. Y.—State Engineer Skeene has submitted for the approval of the State Canal Board a proposal for the improvement of the present line of the Erie canal in Niagara county; the proposed contract is to involve the excavation of about six miles at an estimated cost of \$725,000.

East Liverpool, O.—The Board of Health has been empowered to advertise for bids and award the contract for the collection of garbage; the ordinances to pave Pennsylvania avenue have passed their final reading; asphalt block is the material to be used.

Ironton, O.—The citizens have voted favorably on the proposition of a bond issue for the Ellison avenue sewer, flood defenses and street improvements.

Lebanon, O.—Bids will be received, October 21, for the purchase of \$1,900 4½ per cent. Union township improvement bonds.—Address Brown & Shawhan, Attorneys.

Oberlin, O.—Bids will be received, October 12, for the purchase of \$10,000 4½ per cent. village bonds.—C. H. Snyder, Clerk.

Scranton, Pa.—The matter of establishing the meter system is under consideration.

Nashville, Tenn.—An election will be held, October 10, to vote on the question of issuing \$650,000 6 per cent. 30-year bonds as follows: \$400,000 for electric light extension; \$50,000 for sidewalks; \$200,000 for water mains.—T. O. Morris, Mayor.

Spokane, Wash.—J. C. H. Reynolds, representative of the Spirit Lake townsite on the Blackwell road, north of Spokane, gives out a statement that several hundred thousand dollars will be expended there to make it an ideal town; among the improvements decided upon are: a \$10,000 passenger depot, a mill to cut 30,000,000 feet of lumber a year, railroad shops to cost \$100,000, 25 modern houses and sidewalks, streets and sewer and water systems; the new town will be served by the Idaho & Washington Railroad, of which F. A. Blackwell is President, being also head of the townsite company.

Two Rivers, Wis.—A special election will be held to decide the question of issuing \$20,000 bonds for improving the harbor.—Address City Clerk.

BIDS RECEIVED

Birmingham, Ala.—Bids for the completion of storm sewer now under construction were received from James Mularky, \$36,710; M. J. Burkhalter, \$30,415; Jefferson Construction Company, \$33,921, and J. R. Payne, who offered to complete the job for \$21,000; these bids were referred to a special committee, which recommended the rejection of all bids and that the city proceed to complete the 66-inch sewer; the recommendation was concurred in.

Los Angeles, Cal.—The Board of Public Works has received the following bids on the material and machinery left over from the construction of the outfall sewer: B. Derania proposes to purchase material on section three of the outfall sewer as follows: one 4-h.p. Fairbanks-Morse gasoline hoisting engine, complete, \$250; one 3-h.p. Fairbanks-Morse gasoline engine, including pump which is attached to engine at Slauson avenue and Arlington, \$125; 10,000 feet of lumber, 2x8 and 3x8, at \$12 per M., \$120; 324 jacks, at \$2.3648; 500 feet of galvanized inch pipe, at 5c, \$25; the Arrowhead Gold Mining Company proposed: 1 pulley block, 75c; 1 Llewellyn horse whim, complete, \$100; 1 bucket hook, \$2.50; 2 ore buckets, 22x28, \$25; 1 platform car, \$7.50; 1 shaft bell, \$1; 1 24-inch sheave for 2 3-15 shaft, \$5; 1 12-inch sheave for 1-inch shaft, \$1; 1 6x4-inch wood sweep, \$3; 2 6x18-inch wood stringers, \$4; 1 single-tree, \$1.50; 4 12-pound rails, 4 feet long, 80c; 4 12-pound rails, each 16 feet long, \$6.40; 4 fish plates with bolts, 50c; 26 rail spikes, 25c; 200 feet ½-inch steel cable, \$13; 6 cable

clamps, 30c; 6 ½x6-inch lag screws, 75c; 16 feet ¾-in. rope, 50c; net price at Hyde park, \$175.20; Nelson Bros. proposed: gal. pump house at shaft No. 20, \$10; galvanized house used for blacksmith shop, \$15; No. 1 pipe vise, \$2; portable forge, No. 104, \$3; dandy pipe cutter, \$1.25; 500 feet of open work boggin, grade A, per M., \$6; Waite, Bailie & Co. proposed \$5,005 for the following machinery, etc., on the outfall sewer: 1 40-h.p. Westinghouse motor; 2 40-h.p. Fairbanks-Morse motors; 1 15-h.p. General Electric motor; 1 15-h.p. Westinghouse motor; 2 75-h.p. Westinghouse motors; 1 100-h.p. General Electric motor; 1 5-h.p. Fairbanks-Morse motor; above motors to be complete, with slide rails and bases, pulleys, auto starters, switches, fuse blocks and skeleton frames; 6 Byron Jackson vertical centrifugal pumps, complete with frames, shafting, pipe, pulleys, valves and flanges and couplings; all the small horizontal centrifugal pumps with complete equipment; 1 10-h.p. White & Middleton engine complete; 1 10-h.p. Witte engine, complete; 1 4-h.p. Fairbanks-Morse hoist, complete; 2 small Fairbanks engines, complete; 10 whisks; all the belted hoists complete with cable and sheaves, all belting; all steam boilers, pumps, and engines with present equipment; 1 12x14 duplex little giant driven air compressor and air receiver, complete; all the pipe, casing, valves, flanges and other fittings.

Pasadena, Cal.—Three bids have been received for the extension of fire alarm wires and wiring at Dakota street and Mentor avenue engine houses: Gaylord & Vore fixed price at \$282; H. L. Miller at \$293.50, and Homer Blick at \$325.

Montreal, Can.—City Council has awarded to Patrick McGovern, of Boston, Mass., contract for the construction of the proposed water conduit, at \$684,815; LaSociete Canadienne Enterprise Generale, of this city, bid \$787,700.

Washington, D. C.—The Marion Steam Shovel Company, of Marion, O., was low bidder, at \$158,160, for furnishing twelve steam shovels for use by the Isthmian Canal Commission on the Isthmus of Panama; bids have been opened for furnishing 4,800 gross tons of steel rails for relocating a part of the Panama Railroad; R. C. Hoffman & Co., of Baltimore, being low bidders, at \$149,575.

Chicago, Ill.—The contract for erecting the Lakeview pumping station has been awarded to B. M. Zadick & Co., at \$89,000.

Evansville, Ind.—The Smokeless Fuel and Fertilizer Plant has been awarded the contract for the construction of a garbage reducing plant on the city crematory grounds; the new plant is contracted to reduce all the city's garbage and dead animals.

Ft. Wayne, Ind.—The contract for paving Winter street has been awarded the Moeller Constructing Company, at \$7.06 per foot.

Cedar Rapids, Ia.—R. C. De La Hunt was low bidder for constructing sewers, at \$28.464.05, as follows: 25.50 feet 7-foot circular 3-ring brick sewer, in 9.7-foot trench, rock and clay excavation, at \$9.95; 1,300 feet 12-inch pipe, 48 cents; 50 feet 4-foot circular, \$6.34; 7-foot manholes, \$24; rock excavation, \$2 per cubic yard; sheathing left in trench, 4 cents per foot; brick catch basin, with cast cover, \$19.45; wages of common labor, \$2 per day; other bids were: M. Ford, \$29.207.40; Cedar Rapids Paving and Construction Company, \$30,004.50; Rowe & Tathwell, \$30,843; Bartlett & King, \$31,204; mean of all bids: 7-foot sewer, \$10.42; 12-inch pipe, 49 cents; 4-foot sewer, \$5.04.—T. R. Wariner, City Engineer.

Hopkinsville, Ky.—Contracts have been awarded for 27 miles of pike leading out of this city to the Oriental Construction Company, at \$48,000.

New Albany, Ky.—The contract made with the Barber Asphalt Company for the improvement of West Main street has been annulled by consent of the company, with the provision that an injunction suit filed nearly a year ago by thirty-four property owners of the city should be withdrawn; it is proposed to pave the street with vitrified brick.

Boston, Mass.—Bids were opened at Massachusetts Highway Commission for constructing a section of State highway in the town of Sterling, as follows: R. F. Hudson, \$5.296.80; M. L. Camarco, \$4,754.70; Charles E. Horne, \$4,562.10; Worcester Broken Stone Company, \$4,362.40.

Bids for building new streets in the Roxbury, Dorchester and East Boston districts have been received by the city as follows: Kilborn street, between Harvard and Park streets, Dorchester—William Barrett, \$1,316.40; Philip Doherty, \$1,868.10; D. E. Coleman Company, \$1,901.20; Thos. F. Minton, \$2,045.40; Daniel Marr & Son, \$2,206.50; W. H. Grose & Co., \$2,358.54; William J. Rafferty & Co., \$2,372.60; Daniel E. Lynch, \$2,528.50; Donovan & Doyle, \$2,854.28. Rockledge street, between Lambert avenue and Thornton street, Roxbury—Robert Eager, Jr., \$841.50; Philip Doherty, \$1,172; Daniel E. Lynch, \$1,749; Donovan & Doyle, \$1,943.60. Speedwell street, between Toplift and Hamil-

ton streets, Dorchester—William Barrett, \$1,579.10; William Finneran estate, \$1,608.74; D. E. Coleman Company, \$1,694; Philip Doherty, \$1,822.80; Daniel Marr & Son, \$1,971.58; Joseph J. Comfrey, \$2,028; W. H. Grose & Co., \$2,118.94; Daniel E. Lynch, \$2,254.50; Donovan & Doyle, \$2,673.22. Bayswater street, between Saratoga street and Austin avenue—James Doherty, \$4,652.87; Daniel E. Lynch, \$5,185.50; Jones & Meehan, \$5,412.50; D. E. Coleman Company, \$5,711; Orient Construction Company, \$5,912; Frank Williams, \$8,087.50. Under the terms of the contracts the contractors must supply edge-stones, granite blocks, crushed stones and a macadam surface.

Fall River, Mass.—Patrick Corrigan has been awarded contract for constructing new Westall school, of brick, North Carolina pine for inside trimmings, granite trimmings and galvanized iron cornices, for \$66,500, including heating, lighting, plumbing and all extras except the striking of a ledge, in which case \$4.50 per cubic yard is to be allowed for excavating; James A. Donnelly bid \$69,792, and Fall River Granite and Construction Company, \$73,995.

Holyoke, Mass.—Peter J. Donnelly has been awarded contract for heating and ventilating the Sergeant street school, for \$4,350.

Lowell, Mass.—The contract for the new fire engine for the Gorham street fire house has been awarded to the Amoskeag Steam Fire Engine Co.—Edward S. Hosmer, Chief, Fire Department.

Detroit, Mich.—Bids for constructing three sewers have been rejected for the second time by J. J. Haarer, Commissioner of Public Works, and will be readvertised. James Hanley was low bidder for building section 5 of the Schroeder avenue sewer, at \$26,293.25; with cement and inspection the cost would come to \$28,720.25, when only \$27,225 was allowed by the estimators. Hanley was also low for section 4 of the Schroeder avenue sewer, at \$17,761.15; total cost cement and inspection, \$19,370.15, while the appropriation amounts to but \$18,590. For section 6 of the Lothrop avenue sewer Hanley was also low bidder, at \$10,757, which, with cement and inspection would bring the price up to \$11,908; this price would exceed the appropriation by \$208.

Monett, Mo.—J. J. Dunnigan, Shenandoah, Ia., has been awarded contract for sanitary sewer system, at \$51,998, as follows: Public sewer and septic tank, \$6,437; District No. 1, \$25,213; District No. 2, \$20,348; excavation, under 8 feet, 90 cents; 8 to 12 feet, \$1; 12 to 16 feet, \$1.15; 8-inch pipe, 24 cents; 10-inch, 30 cents; 12-inch, 42 cents; 15-inch, 62 cents; 6 to 8-inch Y's, 75 cents; 6 to 10-inch Y's, \$1; 6 to 12-inch Y's, \$1.50; manholes, \$30; flush tank, \$65; lamp hole, \$10; rock, \$3; lumber, \$30; E. J. Overly & Co., Joplin, Mo., bid \$61,718; McIlroy & Reese, Fayetteville, Ark., \$52,489.90; Wm. F. Hall, Clinton, Mo., \$52,575.—Burns & McDonnell, Kansas City, Engineers.

Hoboken, N. J.—Contract for installing new heating plant in engine house No. 2 has been awarded to Manahan Bros., at \$800.—James H. Londrigan, City Clerk.

Jersey City, N. J.—Bids have been received for new engine, two combination chemical and hose wagons and an aerial truck; the American La France Company, of Seneca Falls, N. Y.; the International Power Company, of Manchester, N. H.; and the Knott Fire Engine Company, of Minneapolis, Minn., bid the same price on the engine, \$5,900; the Ahrens Fire Engine Company, of Cincinnati, O., bid \$6,000, but the bid was thrown out as informal; the American La France Company underbid on the combination hose and chemical wagon; their bid was \$1,850 a wagon, the other concerns bid \$1,950 each; the Combination Ladder Company, of Providence, R. I., and the American La France Company bid \$5,000 each on the new 65-foot aerial truck.—George M. McCarthy, City Clerk.

The Public Service Corporation has bid to supply arc lights for Jersey City under a one-year contract at these terms: For each arc light, per month, \$8.12½; for each arc light per year, \$97.50; under a five-year contract the Public Service Corporation offered to supply arc lights at \$6.25 per light per month or \$75 a light per year; the Public Service Corporation was the only bidder; the present five-year electric contract expires November 30; the present price is \$97.50 a year for each arc light.—Anthony Hauck, President, Board of Public Works.

Philip Tumulty has been awarded the contract for the improvement of Oxford avenue from the Boulevard to West Side avenue.

New Brunswick, N. J.—The contract for paving Dennis street, awarded John Ginder & Son, has been canceled, he having failed to begin the work in the extra time accorded him; bids have been readvertised for.—Fred C. Schneider, City Engineer.

Newark, N. J.—Henry Schneider was low bidder, at \$697,500, to collect and dispose of garbage for five years, commencing January

1, 1908, but as he failed to specify the kind of reduction cremation or incinerating plant would be used for disposing of the refuse, bids were ordered readvertised; J. & B. Meyer bid \$503,000, and Van Keuren & Sons, of Harrison, bid \$810,800.—M. R. Sherrerd, City Engineer.

South Orange Township, N. J.—Bids received for constructing sewers in Maplewood District, Alexander Potter, Consulting Engineer, for which James J. Fusco, Montclair, was awarded contract, at \$21,613.96, as follows: Vitrified pipe sewer—151 feet 10 inches to 6 feet deep, 77 cents; 775 feet 6 to 8 feet deep, 82 cents; 911 feet 8 to 10 feet deep, 87 cents; 350 feet 10 to 12 feet deep, \$1; 225 feet 12 to 14 feet deep, \$1.27; 48 feet 10-inch cast-iron pipe, \$1.29; 8-inch vitrified pipe, 1,367 feet 6 feet deep, 55 cents; 8,139 feet 6 to 8 feet deep, 59 cents; 2,672 feet 8 to 10 feet deep, 67 cents; 1,990 feet 10 to 12 feet deep, 77 cents; 675 feet 12 to 14 feet deep, \$1; 135 feet 14 to 18 feet deep, \$1.37; 100 feet 18 to 22 feet deep, \$2; 12 feet 8-inch cast-iron pipe, \$1.15; 63 manholes, 10 feet deep or less, \$52; 23-foot manholes, over 10 feet deep, \$10 per foot; 40-foot drop manholes, \$12 per foot; 12 flush tanks, complete, \$125 each; 40 branches on 10-inch pipe, \$1 each; 300 branches on 8-inch pipe, 77 cents; 40 feet of deep cut connections, 57 cents per foot; 100 cubic yards concrete, \$7 per yard; 500 lineal feet timber cradle, 50 cents; 1,000 feet 4-inch vitrified pipe sewer, 6 feet deep, 42 cents; 1,200 feet 6 to 8 feet deep, 47 cents; 400 feet 8 to 10 feet deep, 57 cents; 500 feet 6-inch under drain, \$1. Other bidders were Charles Ippolito, Orange, \$21,880.92; Steele & Bave, Owego, N. Y., \$22,334.14; Eveline Bros., New Britain, Conn., \$25,232.25.

Pasquale Cestone, Montclair, N. J., was awarded contract for constructing sewers in South Orange Heights District, at \$17,496.43, as follows: 152 feet 10-inch vitrified pipe, 8 to 10 feet deep, 77 cents; 50 feet vitrified pipe, 10 to 12 feet deep, 87 cents; 48 feet 10-inch cast-iron pipe, \$2.77; 8-inch vitrified pipe, 558 feet, 6 feet deep, 57 cents; 8,360 feet 6 to 8 feet deep, 67 cents; 5,961 feet 8 to 10 feet deep, 77 cents; 1,300 feet 10 to 12 feet, 77 cents; 121 feet 12 to 14 feet deep, 97 cents; 48 feet 8-inch cast-iron pipe, \$2.27; 47 manholes, 10 feet deep or less, \$44; 10 feet of manholes, over 10 feet deep, \$4.47 per foot; 11-foot drop manholes, \$1.97 per foot; 12 flush tanks, complete, \$100 each; 300 branches on 8-inch pipe, 77 cents each; 20 feet of deep cut connections, 30 cents per foot; 100 cubic yards concrete, \$5.57 per yard; 500 lineal feet timber cradle, 20 cents; 2,200 feet 4-inch vitrified pipe sewer to 10 feet deep, 27 cents; 500 feet 6-inch vitrified pipe under drain, 30 cents; other bidders were James J. Frisco, Montclair, \$18,002.44; John Driscoll, Orange, \$18,455.83; Steele & Bave, Owego, N. Y., \$18,763.56; Charles Ippolito, Orange, \$19,485.88; Eveline Bros., New Britain, Conn., \$21,114.64; R. M. Rosser, Kingston, Pa., \$22,215; James A. Christie, Newark, \$25,795.75.

Trenton, N. J.—The Street Committee has rejected bids of Thomas J. McGovern for the paving of South Clinton avenue, from Elmer street to Greenwood avenue; Factory street, from Broad to Warren street, and South Stockton street, from State street to the Assanpink creek, and will ask for new bids; McGovern was the only contractor to bid, and bids were considered far too high; all the pavements were to be asphalt; it is the first time in many months that the Barber Asphalt Paving Company, which has done most of the asphalt in this city, has not bid on contracts.

Cohoes, N. Y.—Council has released the Mulder Brothers, of Albany, from their contracts for the paving of a portion of North Mohawk street, Olmstead street and a portion of Factory street; the company presented an affidavit showing that a mistake had been made in the figures, which should have read \$2.69 a square yard for new granite blocks instead of \$1.69.—John Archibald, Mayor.

The contracts for paving North Mohawk, Olmstead street and a portion of Factory street with new granite block have been awarded to the Grattan Construction Company, at \$2.69 a square yard.—E. H. Van Auken, City Engineer.

New York, N. Y.—Bids have been received at the office of the Bridge Department for the construction of a new steel bridge over the Harlem River at Madison avenue; J. C. Rogers was the lowest bidder, with \$1,115,987.20; other bidders were Bernard Rolf, \$1,333,333; the Phoenix Construction Company, \$1,189,626; the Maryland Steel Company, \$1,324,567, and the Williams Engineering Company, \$1,197,000. The work consists of building a steel draw span, two approach spans, fender piers, three masonry piers in the river, masonry approaches, grading, paving and furnishing electrical equipment for operating the draw and lighting the structure, and also the removal of the old bridge.

Poughkeepsie, N. Y.—Walter Whalen has been awarded contract for laying water mains in Jay, Charles, Winfield and Albany streets, as follows: rock excavation, \$2.70 a cubic yard; 6-inch pipe, .31; 4-inch pipe, .30; hydrant, \$2; valve, \$1.50; total, \$1,273; Michael Hayden bid as follows: rock excavation, \$2.50 a cubic yard; 6-inch pipe, .32; 4-inch pipe, .32; setting hydrant, \$1; valve, \$1.50; total, \$1,285.40.

James E. Martin was low bidder for constructing sewer through Corlies avenue, at \$2,791, as follows: rock excavation, \$3 a cubic yard; 12-inch pipe, \$1.05; 112-inch branch, \$1.60; construction of manhole, \$75; Charles Cooke bid as follows: rock excavation, \$3.50 a cubic yard; 12-inch pipe, \$1.25; 12-inch branch, \$1.65; construction of manhole, \$45; total, \$2,869; Cook was awarded the contract, as he is a local man and has done a great deal of work for the city in a satisfactory manner.—Charles E. Fowler, City Engineer.

Rochester, N. Y.—Houston Barnard was low bidder for the substructure of new sewage pumping station, at \$6,323.60, and F. R. Stockley for riveted pipe, at \$3,543; bids for the main work for the new sewer system have not been tabulated.

New bids were opened for the remodeling of the old armory for a convention hall; the original bids were above the estimate, and the plans were revised to bring down the cost of the work; the new bids are: F. J. Sauer, \$19,600; Fred Gleason, \$21,594; R. T. Ford & Co., \$23,200; Anthony Link, \$21,844; F. H. Rapp & Company, \$21,000.

Troy, N. Y.—The contract for the construction of a sewer in Stannard avenue has been awarded to Andrew Flynn, at \$548.20; George Hannan was the lowest bidder for the construction of two catch basins at the corner of Eagle and Thirteenth streets; he agreed to build both for the sum of \$190; the other bidders were Henry Judge, at \$170 each, and A. H. Chase, \$350 for both.

The contract for the plumbing work at the Hope steamer house has been awarded to John F. Knauff.

Myers Brothers have been awarded the contract for painting and making other repairs to the interior of the Fifteenth street steamer house in the North End; their bid was for \$195.

Bids for fire escapes for schools Nos. 12 and 14 have been received from the Mahony Manufacturing Company and the Covert Fire Escape Company; the bids of the former were: No. 12, \$465 and \$447, and for No. 14, \$400 and \$384; the Covert Company agreed to equip No. 12 with escapes for \$290 and No. 14 for \$310.

Fargo, N. D.—James Kennedy has been awarded the contract for putting in water mains; the bids were: 600 feet of 4-inch pipe on Eleventh street, North, from Eleventh to Twelfth avenues, North, per foot, \$1.23; hydrant, \$64; G. W. Haggart, same, per foot, \$1.31; 1,400 feet of 6-inch pipe on Second street, North, from Sixth to Ninth avenues, North, \$1.48 per foot; hydrant, \$64; C. W. Haggart, \$1.55 per foot; hydrant, \$65; 375 feet of 4-inch pipe on Fifth street, North, from Truesdell's Second Addition to Eleventh avenue, North, \$1.23; hydrant, \$64. G. W. Haggart, \$1.31; hydrant, \$65.

G. W. Haggart has been awarded contract for putting in sewers. The bids were: James Kennedy, 18-inch sewer, 750 feet long, 2 manholes and 12 catch basins, on Ninth avenue, North, trunk, \$3.15 per foot; manholes, \$64; catch basins, \$63. G. W. Haggart, same, \$3.05 per foot, \$61 per manhole and \$63 per catch basin. James Kennedy, 520 feet of 12-inch pipe on Fourth street and Sixth avenue, North, 2 manholes and 6 catch basins, \$1.70 per foot, \$64 per manhole, \$73 per catch basin. G. W. Haggart, \$1.69 per foot, \$61 per manhole and \$63 per catch basin. James Kennedy, 520 feet of 12-inch pipe on Tenth avenue, South, 3 manholes and 6 catch basins, \$1.56 per foot, \$61 per manhole and \$63 per catch basin. G. W. Haggart, \$1.52 per foot, \$59 per manhole and \$63 per catch basin.

Barberton, O.—Paul and Henry, of Akron, are low bidders for paving five streets and constructing one sewer; their aggregate bids being over \$62,000.

Cincinnati, O.—M. Sullivan and Sons have the contracts for the brick paving in Tremont street, at \$19,580; and for improving Montgomery Pike, at \$107,875; O. E. Robinson and Son are low bidders for paving Townsend street with brick, and the Kirschner Construction Company is low for putting down a granite pavement in Kirby avenue, at \$34,700; City Auditor Culkins has awarded contracts for wood block paving in front of City Hall at \$2.50 per square yard; a reduction of 35 cents a square yard of former contract; Thos. P. Strack is the only bidder on a \$30,000 sewer at Price Hill; he will doubtless be given the contract.

Cincinnati, O.—Abstracts of proposals opened by Lt. Col. Wm. T. Rossell, Corps of

Engineers, U. S. A., September 11:

For dam in Ohio river at Marietta Island, Knobloch & Shelton, Erie, Pa., were low bidders, as follows: 10,000 cubic yards, excavation, 95 cents; 198 number piles, \$22; 15,000 pounds iron tie rods, etc., 8 cents; 1,200 cubic yards earth filling, 30 cents; 3,700 cubic yards stone (9-18 cubic feet), \$2.45; 4,000 cubic yards stone (¾-3 cubic feet), \$1.95; 2,680 cubic yards concrete, \$7.77; 40 barrels extra cement, \$2.50; total, \$53,204.60; John C. Thomas, Bellaire, O., bid \$84,020.

For dam in Ohio river at Browns Island, Pennsylvania Contracting Company, Pittsburgh, Pa., 165 cubic yards excavation, ledge rock, \$3; 5,400 cubic yards excavation, loose material, 70 cents; 90 lineal feet anchor bolt holes, 99 cents; 110 piles, \$16; 8,600 pounds iron tie rods, etc., 8 cents; 2,000 cubic yards stone (9-18 cubic feet), \$4; 2,100 cubic yards stone (¾-3 cubic feet), \$4; earth filling (if required), 85 cents; 2,625 cubic yards concrete, \$11.76; 40 barrels extra cement, \$2.25; total, \$54,172.10.

For dike in Ohio river at Grand Chain, Ill., Oscar F. Barrett, Cincinnati, 500 cubic yards stone (6-10 cubic feet), \$3.50; 9,500 cubic yards stone (¾-1 ½ cubic feet), \$3; total, \$30,250.

No bids have as yet been accepted.

Cleveland, O.—A. J. Stowe has the contract for macadamizing Taylor street, at Elyria, at his bid of \$3,775; he also has the contract for constructing the Summer street storm sewer, at \$1,475.

Columbus, O.—Bids have been rejected for the third time for constructing two 36-inch water mains; the lowest bid was that of W. C. Halliday, at \$162,590. A. G. Pugh has the contract for the improvement of Linwood avenue by paving, at \$26,000; Trinidad asphalt will be used. Westwater and Casey have the contract for the construction of the water main connecting the filtration plant with the general distribution system, at \$164,000.

Dayton, O.—A contract has been entered into with the Grove Electrical Company for the extension of electric lights for all streets in Ft. McKinley subdivision. Ft. McKinley is the only suburb lighted with electric lights by its own light plant.

Elyria, O.—A. J. Strough, of Gallion, was low bidder for the Taylor street pavement and storm sewer and was awarded the contract.

Ironton, O.—New bids are to be advertised for the construction of a pure water system; the Harrison Construction Company has the contract, but owing to legal complication it has practically been decided that new bids shall be invited.

Leipsic, O.—F. R. Stone, of Lima, has the contract for constructing Hickey sewer at \$5,200.

Lorain, O.—The bid of the Barber Asphalt Company for paving Vine street for \$18,858 has been accepted.

Marion, O.—Jos. Murphey has the contract for constructing several small sewers; the contract for paving Mary street has been awarded to P. Drake & Sons.

Norwalk, O.—Penney & Corron, of Lorain, are low bidders for constructing storm and sanitary sewers at \$24,285 for concrete construction.

Portsmouth, O.—The Board of Public Service has awarded to Monroe & Son the contract for paving Prospect street, at \$2,100, with Scioto County brick, gravel foundation, cement curb and gutter; and to Pelly Brothers, the paving of Lincoln street, at \$11,764, with Portland cement, concrete foundation, cement curb and gutter and first-class Scioto brick.

Toledo, O.—Wm. G. Ryan has the contract for paving Madeline street at \$3,700.

Philadelphia, Pa.—The Millard Construction Company has been awarded the contract for supplying and laying the 48-inch cast iron pipe for the Third street extension of the pipe line from Girard avenue to Market street; the company's bid for furnishing the 2,354 tons of pipe needed was \$75,413.50, the lowest bid submitted; for laying the pipe the Millard company bid \$47,545.50, while the Mack concern's proposal was \$62,715.75.

Edwin H. Vane has been awarded sewer contract at \$51,764.

Low bids for constructing sewers have been received by Chief Engineer L. S. Webster, as follows: Thomas Run system, Lombardi & Pascuzzi, at \$23,127, including 1,573 feet 5 feet by 5 feet 6-inch brick and rubble, in trench 5 to 25 feet, rock and clay excavation, at \$12.50 to \$16.90 per lineal foot; reconstruction of Market street sewer, Edwin H. Vane, at \$3,925, including 157 feet 5-foot brick and rubble, 17-foot trench, gravel excavation, Belgian block paving to be excavated and relaid, at \$25 per lineal foot; low level intercepting sewer in Park, David Peoples, at \$28,620; 1,590 feet 3-foot 6-inch brick, 15-foot trench, rock excavation, macadam paving to be excavated and relaid, at \$18 per lineal foot, Bingham street and Wyo-

ming avenue sewer, Lombardi & Pascuzzi, at \$13,841; 853 feet 3-foot 6-inch to 4-foot 9-inch brick and concrete, 5 to 15-foot trench, clay and soft rock excavation, macadam paving to be excavated and relaid, at \$6.79 to \$9.33 per lineal foot; Jackson street sewer, David Peoples, at \$36,121; 1,847 feet 6-foot 6-inch and 7-foot brick and rubble, 15-foot trench, clay, gravel, hard pan excavation, at \$19 and \$21 per lineal foot; Twelfth street sewer, Patrick Durkin, at \$8,020; 1,073 feet 3-foot 6-inch and 4-foot brick and concrete sewer in 14-foot trench, clay and gravel excavation, at \$7 and \$8 per lineal foot; high level intercepting sewer, Edwin H. Vane, at \$47,893; 1,267 feet 6-foot brick in tunnel, rock excavation, at \$37.80 per lineal foot; Ninth street sewer, Richard P. Bennis, at \$24,495; 2,055 feet 4-foot 9-inch to 5-foot brick and rubble, 12 to 25-foot trench, clay and gravel excavation, at \$9 to \$19 per lineal foot, the shell of sewer to be 9 inches thick, except in the Jackson street sewer, 13½ inches, and the high level intercepting sewer 15 inches.

Wapakoneta, O.—Contractors' Line & Howell have the contract for the improvement of Vine street, at \$1,303.

Youngstown, O.—John Grady has the contract for constructing sewers in Walnut, Bane and Market streets, at \$6,500.

The Pacific Flush Tank Company, of Chicago, has made a bid for constructing and supervising the installation of the automatic flush tank in the disposal works, at \$1,325.—F. M. Lillie, City Engineer.

Youngstown, O.—Peter Joseph Hake has the contract for grading Liberty street, at 37 cents per cubic foot. Only one bid was received for the trunk sewer contract, that of C. H. DeGrood; the estimated cost is \$21,906.40.—F. M. Lillie, City Engineer.

Zanesville, O.—A contract for paving Wayne avenue has been awarded to Adams Brothers, at \$8,084.

Philadelphia, Pa.—The Welsbach Street Lighting Company of America has been awarded the contract for furnishing and maintaining the lamps of the city for 1908; the Keystone Company's bid for next year was \$28.40 a lamp and \$10.50 a post, while the bid of the Welsbach people was \$29 a lamp and \$9.50 a post; in all there are nearly 15,000 lamps in use in the various sections of the city.

Providence, R. I.—Edward J. Conley has been awarded contract for the removal of ashes from the city buildings, at his bid, \$2,125.

In view of the fact that there seems but slight difference in the bids for concreting several sidewalks of the Citizens' Concrete Company, United States Concrete Company and Henry B. Hathaway, the Superintendent of Buildings has been directed to divide the contract as equally as possible among the three mentioned bidders.

Columbia, S. C.—G. A. Grunard has been awarded contract to lay off streets and construct cement sidewalks in College Park addition for \$10,000.

Chattanooga, Tenn.—Joseph Trimby has been awarded the contract for the rock excavation on the site of the new City Hall, at \$1,650; John Trout bid \$1,825.

Dallas, Tex.—Bids for construction of the workshop for the Water Department on the city's new lot in East Dallas have been received as follows: J. E. Boyer, \$435; E. W. Morris, \$470; W. E. Henderson, \$485; Jackson & Wolf, \$490; Frank Schulz, \$500.

Richford, Vt.—The contract for the cement abutments for bridge on Main street has been awarded to the Sweat-Comings Company, at \$1,000; for the bridge structure there were two bids, one for \$1,168 from the Sweat-Comings Company and one for \$1,300 from a firm in Albany, N. Y.

Auburn, Wash.—The construction of the city water works has been awarded to W. F. McMahon, of this city, for \$13,090, to be completed in ninety days; the supply is to be taken from springs on the bluff west of town.

Spokane, Wash.—H. L. Lillenthal has been awarded the contract for grading, parking and curbing Summit boulevard and Mission avenue from the east line of Cochran street extended to the intersection of Ide avenue at Oak street. The bid of Contractor Lillenthal was \$21,316; the only other bidder for the work was Mitchell Brothers, who bid \$22,000 for the work. The boulevard will also be sidewalked along the distance included in the grading contract. The bids for the sidewalk were made by H. L. Lillenthal, Root & Biegle and Handley & Payne; Mr. Lillenthal also had the low bid for the sidewalking, his bid being \$6,644, as against \$6,930 by Root & Biegle and \$6,703 by Handley & Payne. The Engineer's estimate on the grading was \$23,757.40, and for the sidewalking was \$6,934.80.

Spokane, Wash.—The Barber Asphalt Company was the low bidder on all three contracts for asphalt paving of Lincoln street, Post street and Wall street from the south line of the Northern Pacific right of way to the north line of Second avenue.

On Lincoln street the Barber company bid \$5,730, as against \$5,950 by the rival company; the low bidder also bid \$573 to secure the contract for the maintenance of the street over the territory for a period of 10 years.

On Post street the Barber Company bid \$5,549 for the work, against \$5,925 bid by the Independent Company; the maintenance bid by the Barber company on this piece of work was \$544 for 10 years; the bid of the asphalt paving on Wall street by the Barber company was \$5,039, as against \$5,250 by the Independent company; the low bidders also bid \$503 for the maintenance of the street; the Independent Asphalt Company made no bid for maintenance on any of the three streets; the estimated expense for the improvement as figured by the City Engineer was as follows: Lincoln street, \$6,102; Post street, \$6,036, and Wall street, \$5,337.70.

Tacoma, Wash.—The contract for laying water mains in the newly made streets has been awarded to the Lister Construction Company at \$9,545; for street grading to F. A. Keasal at \$10,463.

Madison, Wis.—Robert Mitchell was the only bidder for constructing sewer on West Main street, his price being \$680, which was accepted.

Superior, Wis.—The Anderson Johnson Company has been awarded contract to build two sewers in Central Park, for \$6,777.12 and \$356.72.

Bids have been received from Stack Brothers and J. P. Wray & Co., plumbers, and Gilbert Skamser for putting in gas and water connections on John avenue, from Third to Belknap, preparatory to paving the street.

Gilbert Skamser has been awarded contract for putting in a concrete culvert across West Fourth street at Newton avenue, for \$1,113.16; other bids from Russell & Holmquist and E. Hawarden were from \$387 to \$500 higher.

T. R. Albright has been awarded contract for 2,000 box elder, maple and elm trees, to be placed on streets between Belknap and Twenty-first, from Butler to Weeks, at \$2.15 per tree; Sid Riches bid \$2.19 per tree.—Robert Kelly, City Engineer.

The Corporation does not bind itself to accept the lowest or any tender.

NEWTON J. KER,
City Engineer.

Ottawa, Can., Sept. 16, 1907.

WATER WORKS

Tucson, Ariz.
Sealed bids will be received at the office of the City Recorder of the City of Tucson, Pima county, Arizona Territory, until 8 o'clock p. m., of the 4th day of November, 1907, for the furnishing of all material and labor for the construction of a system of water works for said city, according to the plans and specifications now on file in the office of said City Recorder in the City Hall in said city of Tucson. All bids shall be made with the proviso in said bid contained that the bidder, if successful, will accept his pay for the work to be done, and material furnished, in fifty-year bonds of the city of Tucson, at par, said bonds to bear interest at the rate of 4½ per cent. per annum, interest payable semi-annually. A certified check in the sum of ten thousand (\$10,000.00) dollars, payable to the city of Tucson, must accompany all bids. The check of the successful bidder to be forfeited to the city of Tucson in the event said successful bidder shall fail to enter into a contract with said city for the construction of said system of water works, and furnish a good and sufficient bond for the construction of same, said bond to be approved by the Mayor and Common Council of the city of Tucson. The Mayor and Common Council of the city of Tucson reserve the right to reject any and all bids. A certified copy of the plans and specifications of said proposed water system will be sent to prospective bidders upon application to the City Recorder of said city of Tucson, accompanied by ten (\$10.00) dollars.

For further information, address "Superintendent of Water Works" or "City Recorder," Tucson, Pima County, Arizona Territory.

CHAS. F. SLACK,
Mayor.
FRANK S. TREAT,
City Recorder.

WATER FILTERS

Atlanta, Ga., Sept. 7, 1907.
Sealed proposals will be received by the Board of Water Commissioners, Atlanta, Ga., until 4:00 o'clock p. m., Wednesday, October 23, 1907, for furnishing and erecting complete a sectional washing pressure filter plant for the City of Atlanta, Ga. Said filter plant to consist of eight (8) units, each unit 8 feet in diameter and 20 feet long. Said filter plant to have a minimum guaranteed daily delivering capacity of 4,000,000 gallons when one (1) unit is out of service during washing period. Guaranteed capacity of proposed filter plant to be tested before accepted. Capacity to be timed and delivery measured by direct discharge into clear water basin.

Said filter plant to be erected at water works pumping station No. 2, on Southern Belt Railroad, about three (3) miles from the city.

Plans and specifications can be had on application to General Manager, Atlanta Water Works, Atlanta, Ga.

The Board reserves the right to reject any or all bids.

BOARD OF WATER COMMISSIONERS,
PARK WOODWARD,
General Manager.

FIRE HOSE

Helena, Mont.
Sealed proposals will be received at the office of the City Clerk in the City Hall building, Helena, Montana, up to noon, Monday, October 21, 1907, for one thousand (1,000) feet of double jacket rubber-lined, 3-ply cotton hose, 2 and ½ inches in diameter, to stand a test of 450 pounds per square inch and guaranteed for a period of five years. The City Council reserves the right to reject any and all bids. Proposals should be marked "Proposals for Fire Hose," and addressed to the undersigned as City Clerk.

By order of the City Council.
MARTIN DOTY,
City Clerk.

WANTS

CHEMISTS—A number of desirable openings for experienced chemists; various locations; salaries \$1,000-\$3,000; write us to-day for free list of positions open. Hapgoods, 305 Broadway, New York.

CONSTRUCTING ENGINEER desires position of some importance in construction of public works, railroads, etc.; has resided several years in the tropics; speaks Spanish; location desired, Southern States, Mexico, Central or South America. Address No. 514, Municipal Journal and Engineer.

Proposals

STREET LIGHTING

Bids for Street Lighting Charleston, S. C., from June 30, 1908, for a Term of One, Two or Four Years

Charleston, S. C.

Sealed proposals will be received at the office of the City Electrician of Charleston, S. C., until 12 o'clock, noon, on November 15, 1907, for lighting the streets and public buildings of the City of Charleston, S. C., for a term of one, two or four years, with electricity, gas or some other illuminating power equivalent thereto, or partly by one and partly by another.

The estimate requirements are five hundred (500) arc lights of the inclosed type, to be supplied with an alternating current of not less than 6.6 amperes, under a pressure of not less than seventy (70) volts, and the electric energy of each lamp 475 watts, with an illuminating capacity of 1,200 (normal) candle-power. Gas to have five (5) foot burners, gas to be delivered at pressure of not less than 13 inches, and to be of standard commercial quality. Detail specifications of lighting will be furnished all bidders upon application to the City Electrician. Lights under this contract to be ready for operation on June 30, 1908. Certified check for \$350 to accompany each bid, and every bidder must be prepared to furnish a bond satisfactory to the Mayor to the penal amount of \$25,000, conditioned for the performance of his part of the contract, provided his bid is accepted. The city reserves the right to reject any and all bids.

ION SIMONS,
City Electrician,
Charleston, S. C.

Approved:
R. M. MASTERS, Chairman,
Committee on Lighting.

ASPHALT PLANT

Sealed tenders addressed to James Davidson, Chairman of the Board of Water Committee, will be received by registered post only at the office of the City Engineer, up to 5 p. m. Wednesday, October 16, 1907, endorsed "Tender for an Asphalt and Bituminous Paving Plant," for the supply and erection of same on a site to be provided by the Corporation.

Specifications, form of tender and full particulars may be obtained at the City Engineer's office, City Hall.